The Effect of the Project Method on the Development of Creative Thinking, Critical Thinking and Emotional Intelligence.

A Case Study of Secondary School Students in the State of Kuwait

Thesis

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Abstract

This research focuses on the project method, one of the main measures of the progressive movement championed by Dewey and Kilpatrick to educate and develop several cognitive and personality abilities and trends in students. This research discusses various theoretical and practical aspects of the project method within and outside of the school environment. A review of the literature supports the impact and importance of project method programmes on educational outcomes. The sample in this research is schools in the State of Kuwait. To understand the educational system in Kuwait, the study compares the educational systems of Kuwait and Saudi Arabia with particular focus on educational stages and scholastic activities programmes. Many educational facts and results have already appeared in this comparison. Therefore, the main objective of this study is to explore the effect of the project method on the teaching of agriculture in schools on students' development according to three variables –creative thinking, critical thinking and emotional intelligence –using a case study of secondary school students in the State of Kuwait. This study also attempts to examine the differences between the genders and students with different academic specializations (scientific and literary) in the variables of this study. Furthermore, we investigate the directions of the correlations among the three variables of this study – creative thinking, critical thinking and emotional intelligence – in the total sample of secondary school students in this study. Additionally, we study the effect and interaction of gender and academic specialization (scientific and literary) on creative thinking. Finally, we determine the best predictors of creative thinking among the study variables of critical thinking and emotional intelligence. The sample consisted of adolescents with a mean age of 17.2 years (SD 1.94 years). The participants were in the eleventh and twelfth grades of public secondary schools in the State of Kuwait. The total number of the sample was 157 students; 75 boys and 82 girls. The results generally show that there are no differences between the genders or academic specializations in the study variables. Creative thinking was found to be positively significantly correlated with emotional intelligence but it was not found to be related to critical thinking. Furthermore, academic specialization and gender (separately) have a significant statistical effect on creative thinking, but there is no significant statistical effect of their interaction together on creative thinking. Additionally, the most important independent variable to predict creative thinking is emotional intelligence. Finally, conducting an agriculture project – the specific project studied in this research– had a significant positive effect on the variables among the secondary school students in this study.

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Introduction

Scholastic projects and extracurricular activities are opportunities to engage in extensions of academic activities and projects under the school's auspices. In special circumstances, for example, when there are budget or scheduling constraints, extracurricular activities may provide experiences that would otherwise be offered within the school day.

Scholastic activities and projects are an integral part of school life. Participation rates in them are known to be very high in the United States. Despite raft of studies on participation in scholastic activities undertaken over nearly eight decades (mainly in the United States), however, not much is known or understood about the causal effect between participation in such activities, projects and educational outcomes (Boaz, 2010). In 1987, Holland and Andre carried out a review of literature relating to extracurricular participation and adolescent development with the aim of providing a critique of methodological approaches and possible directions for future research (Holland& Andre,1987).

Mahoney and Stattin (2000, pp.114-115) characterized highly structured activities as including 'regular participation schedules, rule-guided engagement, direction by one or more adult activity leaders, an emphasis on skill development that is continually increasing in complexity and challenge, activity performance that requires sustained active attention, and clear feedback on performance'. These characteristics, according to Bronfenbrenner and Morris (1998), facilitate the development of initiative and lead to healthy adolescent development.

Scholastic projects and extracurricular activities are very important for children and adults in order to explore other aspects of learning and their creative abilities, skills and attitudes through various fields of art, sports, music and science projects and also through meeting and interaction with other people. Students of all ages may engage in scholastic projects and extracurricular activities and most of them are based on school, but they also can be done outside of the classroom, whether during or after school time. Many students have plenty of leisure time and they do not have a specific plan for any work or practice to support and enrich their various abilities and skills.

Eccles, Lord and Buchanan (1996) mentioned that leisure provides adolescents with unique developmental opportunities. Leisure is a context in which adolescents are encouraged to manage their own experiences through exerting personal control over their environments and acting autonomously (Brown & Theobald, 1998). Leisure also provides opportunities for identity exploration and skill building (Kleiber, 1999) as well as both social differentiation and integration.

Many school-based extracurricular activities and projects, such as sports, student publications, radio stations, or performing groups, can be characterized as highly structured activities. Although outside the narrowly defined academic curriculum (e.g., maths, science, social studies and English), extracurricular activities and projects have traditionally been offered by schools as a way to offer developmental and leadership opportunities for young people, and to build school spirit (Dewey, 1916).

'Do, do, do' is the method that John Dewey advocated as the most successful for learning (Dewey, 1938). We know that the best way for students to learn writing, speaking and social interactions skills is through practice. Every teacher needs to possess a philosophy of teaching and learning. This philosophy provides them with guidance and direction in choosing objectives, learning activities, and assessment procedures. Each philosophy in order to be discussed will possess differences in meaning and implementation. It is salient to understand the relevant philosophical schools of thought in order to make full use of each.

In 1859 the English philosopher Herbert Spencer asked a very profound question in his essay 'What Knowledge Is Most Worth?'.This question proved to be a turning point for what was to come, for it influenced many who followed (Tanner& Tanner, 1995). Prior to 1900, education had little to offer in the way of theoretical from work (Wilburg, 1998). The belief in that period was that schools should impose strong discipline and pupils should not talk to each other; all communications should be between the teacher and the class (Tyler, 1975). A popular curriculum of the day centred around McGuffy which taught American ideals and morals (Ornstein& Hunkins, 1998).

Dewey's influential books, *School and Society* (1899) and *Interest and Effort in Education* (1913), had the same theme as many of his later works, namely that students' interests are an important component in any curriculum. Teachers of all subjects must focus on their skills, not only their subjects. They should also direct their work as teachers to the environment for making a direct connection between students and their various environments, and it can possibly be done by extra-curricular, outdoor activities and various project methods. The school has to give students not only

an insight into the social importance of such activities, but also above of all the opportunities to practise them in play form. This leads naturally into the problem or 'project' method which has come to be identified with the essence of the progressive approach (Horn, 1922). Unlike traditional conservative education, proponents of the project method want to allow the student to solve problems with as little teacher direction as possible. The teacher is seen more as a facilitator than the deliverer of knowledge and information.

Preparing students for a successful transition out of the classroom has been a concern of educators for many years. It has been difficult to devise curricula that effectively connect the structured environment of school with life outside of the classroom. Today teachers should create a curriculum which engages and prepares students for the life ahead of them and also meets state-mandated standards. This result is not an easy one to achieve. We always suppose that there should be positive interaction and relations between teacher and student during school life.

Coulter (2001, p. 95) suggested that teachers, students, and community members could create public spaces where they serve as 'communicative actors who supporting the life world of their various communities'. In addition, Stokes (2001) provided documented case studies that illustrate how schools can develop through interplay between a variety of inquiry strategies (e.g., grade-level action research, whole school, and voluntary groups) which focus on beliefs about a student's abilities and instruction. Some researchers have posited the notion whereby constructivist approaches are applied to teacher leadership initiatives. In line with assertions by Stokes (2001), Bayazit and Gray (2004) suggested that educators study constructivist classrooms and conduct action research on constructivist methodologies. Also, Hill and Parker (2006) noted that studies should include independent researchers that would evaluate the curricula based on the internal goals set by curriculum designers and external requirements set by colleges and universities.

The National Research Council's (NRC, 1999) standards for science education suggest long-term inquiry activities including argumentation and explanation, communicating ideas to others and using a wide range of manipulative, cognitive and procedural skills that promote learning. The standards suggest that to develop their understanding, students need to relate new information to existing knowledge and build connected networks of concepts. In addition, the NRC (1999) called for the teaching of 'fluency with information technology' and strongly recommended the use of technology to promote the understanding of science and mathematics. Theorists and educators are promoting reality-centred projects and other reality-centred activities as ways to engage students in meaningful

learning. Experienced educators tend to agree that students learn best through a project-based approach in which they are able to discover things for themselves and take advantage of technological tools (Blumenfeld et al., 1991; Clinchy, 1989; Kinzer& McKenna 1999; Linn et al., 2000).

In 1922 the North American pedagogue Walter Barnes posed the question: 'What essentially is the new education?', asserting in response that it was a common movement built upon seven clearly distinguishable elements (Andres, 2009). The first six of these were: scientific psychology, which had proved through experiment that 'each child is the centre of his universe'; the 'scientific spirit in education'; 'a new philosophy of education', which interpreted education not as a preparation for life, but as the life itself; 'the new sociology', with its growing yearning for democracy and its firm conviction that 'the only way that we can make a democratic society practicable is by universal education'; a scholastic system that was undergoing change; and 'a new school curriculum', which included those subjects and activities that proved interesting and valuable for children. The last pillar was 'the new methods of teaching'. All of these methods were inspired in new didactic concepts such as 'motivation', 'socialization' and the 'project method', which integrated these two concepts and put them into practice by means of 'a task or sequence of tasks of some magnitude, resulting in a substantial, objective group result'. This rather vague definition culminated in a cry of victory: 'Never in the history of the world since the first school was established have we had a theory and art of teaching, a system of education as effective, as nearly perfect, and fostered by the new education'.

According to a new vision of schooling, transferring skills are the main job of education. However, an increasing body of research shows that the way knowledge is presented to students in school and the kinds of operations which they are asked to perform result in students who know something but who fail to use it when relevant. Brown, Collins and Duguid (1989) believed that classroom activities lack the contextual features of real-life problem-solving situations and therefore weaken the ability of students to transfer and apply their knowledge from the school setting to the outside world. The challenge, as Santos-Trigo and Camacho-Machín (2009) proposed, is to ask the question: 'Can routine problems be transformed into problem solving activities that promote students' mathematical reflection?'. Studies suggest that, in order to facilitate transfer, promote effective learning and encourage a high degree of ownership and personal relevance, educators should provide training on real tasks. Similarly, researchers believe that cases and examples must be studied as they really occur, in their natural contexts, not as stripped-down 'textbook examples' that conveniently illustrate some principle (Blumenfeld et al., 1991). The extent in order to process of solving textbook

problems can help students to develop a way of thinking to be consistent with mathematical practice which is still under investigation (Santos-Trigo & Camacho-Machín, 2009). The future education plans for any education system proposed consist of specific strategies to focus on projects and activities based learning if we want to get high level of quality of education outcomes and results.

Projects and activities are based on learning that is student-driven and teacher-facilitated. Learners pursue knowledge through asking questions that have piqued their natural curiosity. The genesis of a project is an inquiry. Students develop a question and they are guided through research under the teacher's supervision. Discoveries are illustrated by creating a project to share with a select audience. Organizers support systematization of the processes that will be implemented throughout the research and project phases of project-based learning. Student choice is a key element of this approach. Teachers oversee each step of the process and approve each choice before the student embarks in a direction. Children with similar inquiries may elect to work cooperatively, thereby nurturing twenty-first-century collaboration and communication skills and respecting students' individual learning styles or preferences (Stephani, 2010).

The effectiveness of the conventional models of education has been a focus of research over the years (Solomon, 2003; Chai & Tan, 2009). Passive learning by students has motivated educators constantly to seek innovative ways to motivate students and improve learning outcomes (Hafner & Ellis, 2004; Marina, 2009).

Project-based learning was introduced in the early twentieth century to motivate student self-learning (Kilpatrick, 1918). Project-based learning method calls for learners to acquire and develop core learning concepts through collaborative projects that require the learning and application of contextual knowledge. The literature has shown that project-based learning enables students to become interactive learners (Synteta& Schneider, 2002), in addition to constructing knowledge through exploration (Prince& Felder, 2007).

Project-based learning blends traditional subject-matter goals and objectives with authentic learning environments. The primary rationale for using authentic activity as the model for appropriate learning activities is the enhanced understanding that develops through application and manipulation of knowledge within context. Finding solutions for a problem whether posed by the teacher or a new social environment, is more likely to develop generic as well as subject specific skills when using project-based curriculum. In other words, project-based learning provides productive environments for the development of meta-cognition (Downing, Kwong, Chan, Lam, & Downing, 2009).

In project-based learning, students construct knowledge and build on their background knowledge. Students retain more information when they learn by doing. Dewey proposed that learning by doing has great benefit in shaping students' learning. High-quality experiences, as well as continuity of experiences, are paramount. Project-based learning is an effective approach and is in the line with Dewey's philosophies, which many educators have ascribed for enriched learning (Dewey, 1938).

The project-based learning method has been implemented with success as early as preschool using the Reggio Emilia approach. Reggio Emilia is a project-based learning approach that began in northern Italy. It is a child-centred approach where the children are encouraged to pursue their natural curiosity. They discover through experiences that are carefully documented. Teachers guide students and there are resources for students throughout their studies. Students learn through collaboration and employ critical thinking skills as they engage in projects (Stephani, 2010).

In particular, pre-school students are encouraged to explore, investigate, and experience. This is the jumping off point for developing students' love of learning and nurturing their natural curiosity. At the beginning of project-based learning, students learn in a social environment, work hand-in-hand with their teachers to discover ideas through careful scaffolding, document their journey of learning, and finally present their learning through projects.

Polychronopoulou and Divans (2009) conducted a study to identify dental students' self-reported sources of stress. The findings revealed that project based learning when compared with traditional curricula was inversely associated with perceived stress and that in turn had a strong impact on learning. Nevertheless, transformation of the conventional classroom into an authentic learning environment involves much more than incorporating features of real-life situations into school work. Furthermore, curriculum innovations are never easy to implement or to examine systematically. Balasooriya, Hughes and Toohey (2009) carried out a study on the impact of a new integrated medical educational design on students' approaches to learning. Although the programme was based on curriculum features identified in the research literature to promote deeper approaches to learning, the results indicate shifting students towards deeper approaches for learning maybe a more complex task than previously understood.

Some challenges nevertheless arise when applying project work in traditional classroom settings, for example, additional time demands beside class hours placed on students to interact with peers and to engage in project work (Noddings, 1992; Anderson& Bourke, 2000; Thomas & MacGregor, 2005). Students' interactions are often limited in face-to-face contexts, even though active

interaction among group members is a key factor for successful project work (Krajcik, Czerniak & Berger, 1998). When learners have much opportunities to interact with each other with fewer temporal and spatial limitations, they obtain more productive outcomes from project work. That is why many scholars pay attention to the use of information and communication technology (ICT) when implementing project- based learning (Heeok, Kyu, & Youngsoo, 2010).

Yi-Man (2010) asserted in his study that the challenges in implementing project work in schools include both external and internal barriers. External obstructions were related to district curriculum and policies involving:

i. The challenges of teachers' roles shifting from dominators to facilitators;
ii. The accomplishment of curriculum requirements;
iii. The conflict in reward systems between school districts and project method;
iv. Teachers' assumptions about students needing basic skills to do investigations;
v. Time consumption in leading students and preparation; and
vi. The value of learning processes. Internal obstructions were:

I. Teachers' willingness to try a new task.

II. Difficulties in assessing students' learning.

III. Students becoming initiative learners.

Tallia (2003) emphasized in her study that one of the most common criticisms of schools today is that they do not adequately prepare students for entering the working world. They are less skilled than graduating students from rival countries, and as a result, they are losing both places at the best colleges and the most competitive jobs. Through the restructuring of curriculum to create a more authentic learning environment that reflects the needs and interests of the individual student, educators hope to raise the level of students' achievement.

There are various methods and models of projects, each one focused on different practical attitudes, directions, steps and procedures. There is no doubt that there are several integrations and interfering among these dimensions on one side, and among projects on the other side. Morgan (1995), for example, described three general models of project work for educational purposes:

i. Project exercise: The aim of this type of project is that students should apply knowledge and techniques which they have already acquired to an academic issue in a subject area. This represents the most traditional kind of project-based learning;

ii. Project component: In this type of project work, the aims are broader and the scope is larger; the project is more interdisciplinary in nature and often related to 'real world' issues; the objectives include developing problem-solving abilities and a capacity for independent work. Generally, traditionally taught courses which are studied in parallel with the project course;

iii. Project orientation: This term denotes the entire curriculum philosophy of a programme of study; the projects that students complete form the entire basis of their university education, while instructional teaching is provided only to supplement the requirements of the project topics; and

iv. The subject material studied is determined by the demands of the project topics, which is in sharp contrast to model.

There are various definitions and dimensions of scholastic projects according to the different educational, psychological and philosophical schools and trends of researchers. In this study the research will adopt *Project Method* as the main variable in his study, moreover we will study the relationship among project method with creative thinking, critical thinking and emotional intelligence by secondary school students in Kuwait as a case study.

The project method has emerged as a promising practice for meeting the varying needs and interests of today's young students (Katz& Chard, 2000). The project method 'refers to a way of teaching and learning as well as the content of what is taught and learned' (Katz& Chard, 1989, p.3). As a way of teaching and learning, it requires a teacher to encourage children's active participation in their own learning through interaction with the environment, including people and objects, in personally meaningful ways. The content is 'usually drawn from the world that is familiar to the children' (ibid.). This approach 'is designed to help young children make deeper and fuller sense of events and phenomena in their own environment' (Katz, 1998, p. 48). Children work on projects individually, in small groups or as a whole class. During projects, children strive to find answers to questions which they have conceived by themselves or in collaboration with their

teachers. The goal of project work is to explore and learn more about a topic, not necessarily to find the right answer (Shalaway, 1997).

Projects are 'the epitome of an integrated curriculum' (Gordon & Browne, 2004, p.398). The topic of a project is an authentic experience that children can research directly instead of relying solely on secondary sources through library research. Helm and Katz (2001) argued that topics of interest for children need to be the heart of projects, but not every interest a child has is equally worthy of the time and effort implicated in high quality projects. Topics should allow children to understand their own experience and environment deeply, in order to strengthen their disposition to investigate phenomena worthy of attention, to apply various skills, and to develop an understanding about various media applicable to their work. A project involves three phases. During the first phase, children and their teacher select and discuss a topic to be explored. In the second phase, the children conduct first-hand investigations and then create representations of their findings. The third phase includes culminating and debriefing events (Katz, 1994a; Katz& Chard, 1989, 2000).

The project method is an educational enterprise in which children solve a practical problem over a period of several days or weeks. It may involve, for example, building a rocket, designing a playground, playing football or basketball, as a discussion project to realize its rules, or publishing a class newspaper. The projects may be suggested by the teacher, but they are planned and executed as far as possible by the students themselves, individually or in groups. Project work focuses on applying, not imparting, specific knowledge or skills, and on improving student involvement and motivation in order to foster independent thinking, self-confidence, and social responsibility.

Today the project is one of the standard teaching methods (Apel& Knoll, 2001). It is generally considered a means by which students can (a) develop independence and responsibility, and (b) practice social and democratic modes of behaviour. In spite of that some researchers (Church & Sedlak, 1976; Cremin, 1961; Kilpatrick, 1918) mention that the project method is a genuine product of the American progressive education movement and it was described in detail and definitively delimited for the first time by William Heard Kilpatrick in his essay 'The Project Method', which became known worldwide. However, the project method already existed before the progressive education movement –from 1590 to 1765 the project method was applied at the academies of architecture and vocational studies in Rome and Paris (Knoll, 2002).

The project method is also one of the most effective tools for student learning. Behind this approach is the idea that authentic assessments done in the rich environment of the classroom can

provide invaluable insight into exactly what each child is learning. Additionally, reflection on the many ways in which students participate in small and large group activities can add to the base a teacher (Kilpatrick, 1918; Katz & Chard, 2000). It empowers students as they participate in making real decisions about what they will study, and how they will present their accomplishments. The project method provides meaningful context for the teacher to observe students' learning and to use those observations to guide further instruction.

Kilpatrick's immensely popular essay 'The Project Method' (1918) made him well known among educators in the United States. This method focuses on the interests of children, and advocates that by using their interests as units of study, learning becomes more relevant and meaningful. His most prominent book, *Foundations of Method* (1925), became a widely used textbook in education courses nationwide.

The notion of the project is central to socio-constructivism and other related activity-based approaches. A project allows learners to identify and formulate their own problems. The goals which they set as well as the unexpected discoveries that that they will make during their interaction with the environment serve as guides (Collins, Brown, & Newman, 1989). It is therefore important to divide scenarios and to divide problems into sub-problems, so that learners perform only one task at a time and that these tasks are flexible enough in order for learners to be able to achieve them whatever their basic level. Project-based learning is a model which is distinct from traditional teaching, since the focus is put on the learner and their project. Learners have the opportunity to work more autonomously and build their knowledge.

Sallee (2010) mentioned that the project method is a multidimensional and interconnected method of teaching based on the constructivist theory of how children learn. The method reflects a philosophy of teaching that permeates the topics of children's study and the way they are taught. The content of a project varies depending on the topic a particular group of children and teachers is interested in investigating and their abilities.

The fact that it is a method, rather than a curriculum with specific content, makes it difficult to compare the project method with commercially available curricula. The content, knowledge, dispositions, and skills emphasized are likely to vary from project to project within a given classroom and also to vary from classroom to classroom. Consequently, the very responsiveness and elasticity that are claimed as the strengths of the project method are likely to increase the challenge of comparing the project method across classrooms. This challenge may account, in part,

for the lack of research on its implementation and effectiveness. As teachers plan for project work they anticipate what individual students know and can do, what children want to know or do, and how the children can best accomplish their investigation. Considering what children know and how can help teachers to support children's use of multiple means of representation and expression in project work. Considering what children want to know or do and how they can best accomplish their investigation helps teachers provide children with multiple means of engagement. Consequently, the project method may provide a context that supports peer communication, interaction, and increased engagement, resulting in a reduction in challenging behaviours.

The project method has the potential to enable students to research, plan, design and reflect on the creation of technological projects (Doppelt, 2000). This method could be used as a tool to develop students' competencies through working on integrated projects (Barlex, 2002). Designing an authentic project means that students define their own design problem, deal with needs, and decide on their requirements. An authentic project deals with real life situations and by definition has an integrated nature and enables pupils to combine 'hands-on' activities with what Papert (1980) has termed 'heads-in' activities. A design process is similar to problem solving and it has a general structure which includes six stages: defining the problem and identifying the need, collecting information, introducing alternative solutions, choosing the optimal solution, designing and constructing a prototype, and evaluation (McCormick & Murphy, 1994).

In order to avoid teaching a general design process, for example, teachers should assist in integrating disciplines in the design process and to teach standards, rules, and marketing in addition to a wide base of scientific knowledge (DeVries, 1996). A scholastic project encourages students to work in teams (Barak& Maymon, 1998; Denton, 1994). According to Katz and Chard (2000, p. 52), 'projects can include a sufficient variety of tasks to accommodate the diverse contributions from mixed groups-mixed in ability as well as in age'. While research on the project method is limited, researchers and teachers have reported that implementing the project method is useful in teaching young children with disabilities (Donegan, Hong, Trepanier-Street, &Finkelstein, 2005).

Many educational experts emphasize that the project method can be integrated with other curricula in early childhood education (Clarck, 2006; Helm& Beneke, 2003). The results of the study by Yi-Man (2010) revealed that 31.8% of the teachers reported that the dominant curriculum was the project method. The other teachers integrated a different curriculum in conjunction with this method, and as this finding was supported by the interview findings. The interviewees reported that

diverse curricula could be integrated with the project method, such as theme based curriculum, centre based curriculum, and art based curriculum.

Challenging behaviour has been defined as 'any repeated pattern of behavior, or perception of behavior, that interferes with or is at risk of interfering with optimal learning or engagement in pro-social interactions with peers and adults' (Smith & Fox, 2002, p. 5). According to the Center for Social Emotional Foundations for Early Learning at Vanderbilt University in USA (Dunlap& Liso, 2004), engagement is key to prevent challenging behaviour. However, engagement is typically described in terms of environmental arrangement in the classroom, scheduling, and implementing rules. The potential motivation provided by embedding these practices in the broader context of purposeful, coherent, activities is not mentioned. Project investigations are typically extended, in-depth, first-hand, research efforts conducted by a group of children with the goal of satisfying their shared curiosity about a phenomenon or event in their environment. Project work can provide diverse learners with the motivation to participate and persevere in social and academic learning activities, and also support several creative skills (Beneke& Ostrosky, 2009).

If we want to guarantee the high level of our educational outcomes, we must consider the importance of the roles and direct effects of students' parents, because without them following and evaluating their children in their scholastic lives, they cannot discover and then support and develop their creative abilities and skills during their practice and work on various scholastic activities and projects. Souto-Manning and Lee (2005) examined parents' viewpoints about the project approach by inviting parents to write down their understanding about this approach from their children. The nine participants from north-eastern Georgia included parents of gifted students, students with special needs, and English as second language learners. Three-quarters of them were low-income families. In order to receive authentic answers, researchers conducted the study during the summer vacation instead of the regular semester. The results showed that parents developed positive attitudes towards project activities including:

i. Enhancing motivation;
ii. Building a community of learners;
iii. Applying students' interests and strengths;
iv. Improving students' academic performance; and
v. Engaging parental involvement.

Liu and Chien (1998) observed and documented the implementation of the project approach over one year at a laboratory school in Taiwan. They discovered several benefits of parental involvement in children's learning, including:

i. Parents were more willing to become involved in their children's learning;
ii. Parents developed their communication skills with their children;
iii. Parents worked together and shared their experiences to enhance children's learning;
iv. Fathers increased their involvement;
v. Creating portfolios to record parents' expertise;
vi. Using authentic assessments to help parents to understand their children;
vii. Determining project topics based on children's and parents' interests; and
viii. Project activities to include parental involvement.

In 'Project Katrina', Aghayan and colleagues (2005) found that parents gained a better understanding about children's learning. It was easier to involve parents with classroom activities in the project approach that any other teaching method. The survey findings revealed that most teachers (65%) had no difficulties with involving parents in classroom activities. Parents must have a general idea and some educational experience to help their children to find the right extracurricular activities and projects. Rosa (2007) mentioned some general points on how parents can help their children to find specific and suitable extracurricular activities and projects then select them regarding to their various potentials and skill. These points as the follows:

i. Explain to the child that they will need to do school work first before participating in any extracurricular activity or scholastic project.

ii. Both parents and their children should know that activities and projects usually require attendance after school and sometimes on the weekends.

iii. Extracurricular activities and scholastic projects are a commitment that they will need to stick, to. A lot of these activities will require a certain amount of participation after joining.

Moreover, there are other various practical and theoretical steps and strategies parents can use to help their children to find suitable extracurricular activities and projects regarding their potentials

and attitudes. There is a strong relationship between experienced and creative teachers with a positive project method. Without a specific educational plan to support and promote teachers in their schools, we will not achieve the high level of educational outcomes we seek in and out of the scholastic environment.

There is no doubt that teaching is a complex task involving knowledge of children's and adults' development and teachers' learning, knowledge of effective teaching strategies and content knowledge (Kostelnik, Soderman& Whiren, 2007). In order to examine fully teachers' concerns about their teaching, Fuller (1969) categorized teachers' concerns into three developmental categories; self, task, and impact. Furthermore, teachers concerns differ depending on their experience: pre-service and beginning teachers, experienced teachers, and teachers with concerns about adopting a new curriculum. Teachers' experiences and their roles in interaction with students can become like filters to examine teaching styles (Curtis& Carter, 1996). Teachers enrich their teaching abilities through observation of their classroom activities and discussion with other colleagues, directors, and experts (Jones & Nimmo, 1994). Teachers' education and their professional development are not only the vehicles for developing quality programmes, but they also help teachers to adjust their teaching philosophies and practice in order to create meaningful activities for their pupils (Hsu, 2008).

Katz (1995) stated that 'teachers may make changes and improvements in their teaching as time passes. Understanding teachers' transformations in their teaching is a prerequisite to providing appropriate training programmes in order to improve levels of professional teaching'. Katz (1995) classified teachers' training into four dimensions:

i. Developmental stages of teachers;
ii. The acquired training for each stage;
iii. Training sites; and
iv. The time schedule for training.

Teachers increase their professional development via their teaching (Clandinin, 1989). Fosnot (1996) defined teachers' professional development into four levels:

i. Analysing their teaching and discussing with other colleagues;
ii. Analysing and understanding childrens' thinking processes;

iii. Field experiences, especially working with experienced teachers; and

iv. Being mentored by an experienced teacher in the first year of teaching.

Catapano (2005) examined the professional development of two early childhood teachers who were teaching the project approach by analysing each teacher's stories of project work. The results revealed that teachers, like researchers, developed teaching skills in reciprocal teaching and reflection in action, while these two teachers used the four cognitive strategies of questioning, summarizing, clarifying, and predicting to support children remodelling the project work. Meanwhile, the participants obtained feedback from children, other colleagues, and supervisors which also improved their teaching skills. Additionally, documentation provided strong evidence of the feedback from children in diverse features, such as photographs and teachers' narratives.

Hsum (as cited in Edwards, 2012) interviewed seven Taiwanese early childhood teachers including novices and experienced teachers in order to explore their professional development. In the study, one of the participants discussed an expanded way of thinking after utilizing the project approach; this approach also enhanced teachers' abilities to propose questions and to communicate with children. Results also showed that teachers' professional development benefited from their teaching experiences, work tasks, communicating (with parents, colleagues and supervisors) and job training.

Teachers using the project method must give their students more chances to support their several cognitive and emotional skills and abilities. Since the project method involves plans, processes experiences, ideas, interaction, products, evaluation, and feedback, students must feel that there is a democratic environment around them that supports their ideas and imagination without prejudice or fears. The greatest care of education must be keeping away from the mind of a child things which go beyond his or her capacity (Oelkers, 1997). These factors will support several of the critical and creative thinking abilities, of course, with a learned, educated and creative teacher and available scholastic administration that ensures all the finances and materials support their students in achieving their projects.

A project is an in-depth investigation of a topic in which 'children's ideas, questions, theories, predictions, and interests are major determinants of the experiences provided and the work accomplished' (Katz & Chard, 2000, p. 5). Kilpatrick's (1918) article, 'Project Method' attested to this historical root. He articulated that a project is 'the hearty purposeful act and could be used to actualize the ideal that education is life' (p. 320), not a mere preparation for later life. He argued that

educational experience should have a resemblance to the worthy life, which consists of 'purposive activity' (p. 322). Although the project method is similar to the Bank Street Model (Katz & Chard, 1989, 2000), this idea was most extensively used in early childhood classrooms in other countries, such as the infant schools in the United Kingdom (Helm & Katz, 2001) which were re-organized based on 'Lady Plowden's Report' (1967). There are also the Reggio Emilia schools in Italy which have received international recognition in recent decades (Edwards, Gadini, & Foreman, 1993).Moreover the project method is used in various vocational training courses and sectors to support and enhance the cognitive and personal abilities and skills of employees.

Many educators, families and communities are searching for evidence on the best way to provide a high quality of education for their children and to make the best use of their education funds. The quality of education is supposed to combine the theoretical and practical aspects, not only to focus on the theoretical curriculum for just passing exams without any interest in building and supporting the various abilities of students such as critical, creative, emotional and scientific thinking. Thus, by activities and practices in various scholastic projects, the students can find themselves creative human beings. With the projects method students can open many cultural and educational windows and build bridges with other environments, whether locally or globally. The best quality of education is also supposed to gain various educational benefits from literature on childhood, because 'without it and especially without its critical points, the public awareness of the maxims of education could probably have not changed so rapidly' (Oelkers, 1995, p. 675).

We can realize how the creative abilities, skills and educational experiences of teachers can have a positive effect to support and enrich various dimensions of scholastic projects and activities, since the teacher is supposed to realize and understand several educational theories, child development and projects. However, educators of children and adults have to spend all day and all of their energy working with their pupils, which may diminish their impetus to enhance their own professional development.

Since students are central to scholastic activities and projects, Hopkins (1979, p. 17) states that 'students should be free to determine when and how they learn and work', but also that educators need to be concerned about who decides what is to be learned. While open education allows students to be free in order to decide what to do, teachers have to retain 'a significant control over what the student is to learn'. In Dewey's (1916, p. 352) view, freedom means 'intellectual initiative independence in observation, judicious intervention, foresight of consequences, and ingenuity of

adaptation to them'. In addition, Dewey states that 'intellectual freedom and social interaction in groups enable their members to solve social problems by practicing free communication'. Teachers should create a suitable environment in and out of the classroom which promotes students to build their various abilities, attitudes and skills, also by administering psychological methods to create motivation and enthusiastic trends and attitudes among students in various educational environments. In spite of that, motivating students to learn is a problem which many teachers face, because students are reluctant to work on projects or tasks in other work which are meant to develop skills they will need in the future. Many teachers resort to using extrinsic motivation (Tallia, 2003). Project work takes a different approach by attempting to motivate students intrinsically. It relies on the interest of the student and the appeal of being able to actually work on the activities themselves. Because project work offers so many options, students are rarely required to work on an activity that does not interest them. When students are intrinsically motivated, they are more apt to become engrossed in what they are doing, resulting in them becoming more independent workers. Students feel a sense of purpose in what they are doing, and seek to overcome the difficulties and challenges (Catapano, 2005). In project work students are not required to move through a set sequence of stages. They are able to choose their work from a wide range of options that the teacher provides. In the level of difficulty, the student is able to choose topics by what they are interested in, rather than by their ability level. Students are encouraged to select a variety of tasks ranging in level, so as not to feel overwhelmed or bored by their experiences. The project approach or method has come to be viewed as a progressive education movement, that encourages students to be actively engaged in their studies, rather than passively stuffed full of knowledge. This movement has brought the redefining of the word project (Jenny& Catherine, 2011).

The project method is based on the simple idea that students have much of value to add to the teaching/learning process. A project takes a group of students through three phases to study a particular topic or accomplish a specific goal (Helm & Katz, 2001). There are many different kinds of project, varying in complexity and scope, and with the age and interests of the students. However, all projects share the common thread of actively involving students in the learning that takes place (Katz, 1994b).

Kliebard (1986) indicated that the active involvement of the learner is necessary to choose a project within an ongoing social studies unit of study. Interest is inherent in choosing the project. Careful consideration is given to interest factors, learner purpose is important also. Thus, there are reasons for choosing and working on a project. Projects may stress individual or group endeavours,

depending upon the learning style of the students. After the selection has been made, the student with teacher's guidance develops a plan to follow in doing the project. The plans made follow a definite sequence. Included in the plans are the materials that will be necessary to complete the project (Katz & Chard, 2000). There is a plethora of developmentally appropriate projects to be made, such as a model farm, a solar collector, an urban scene, soil conservation scenes, or a housing development. Students in a project method environment should be allowed to explore and experience their environment through their senses and, in a sense, to direct their own learning by their individual interests. Katz and Chard (2000) asserted that we readily agree that the students should learn the knowledge and skills that will enable them to become productive, contributing, and competent members of society. They should learn to be honest, responsible, cooperative, and so on, and in other ways, realize as much as possible of their potentials. Working with the projects method in school learning provides an opportunity for learners to encounter real problems and to combine their knowledge in order to solve the authentic problems. Even though there are some challenges like curriculum adjustment, project design, time management, and peer collaboration for integrating project methods into formal educational systems (Gülbahar & Tinmaz, 2006), solving realistic problems and producing concrete artifacts through group work are critical for learners to generate genuine experiences, especially in higher education.

While school work focuses on individual achievement and internalization of knowledge, much activity outside school in the real world requires collaboration and practical participation for socially shared accomplishment (Resnick, 1987). Social engagement, addressing the social perspective of the project method, connects individual achievements from school learning and collaborative group work in real situations. In the socio-cultural view of learning, knowledge is socially constructed through active interaction and externally mediating actions (Gunawardena, Lowe, & Anderson, 1997). The thinking and feeling of each individual may be influenced by controversial discussion with others in a group and the individuals may reconstruct their perspectives, as they are affected by the opinions of other members of the group. In this way, knowledge is extended individually as well as socially, and the social construction of knowledge plays an important role in obtaining successful outcomes in the project method.

Practising with the project method will support several aspects of interaction among students while working together on their scholastic projects, because interaction is essential for meaningful learning experiences in face-to-face contexts as well as online environments (Garrison & Cleveland-Innes,

2005), given that the lack of social interaction in online learning environments may result in learning failure (Paloff& Pratt, 2001).

Considering that deep learning and meaningful construction of knowledge can occur in interpersonal relationships and social activities in the view of socio-cultural learning (Barab, Thomas, & Merrill, 2001), the quantity and quality of interaction among participants must be a major interest in all educational settings. Interaction and engagement in online activities, such as online discussions, peer reviews, product development and knowledge building, provide online learners with continuing learning motivation and consummative experience leading to further progress. Various opportunities and tools to facilitate interaction among participants should be provided for successful online learning (McLoughlin, 2002). Learners are able to have critical discourses and a worthwhile educational experience through message threads in online learning environments regardless of their diverse and dispersed perspectives. Schrire (2004) clarified the pattern of online interaction and its relationships with cognitive development in online discussion, and he found the appearance of knowledge is building in asynchronous online discussions. As the quality of online learning depends on the quality of interaction in most cases (Haythornthwaite, 2002; Jiang& Ting, 2000).

This study focuses on the project method in relation to creative thinking, critical thinking and emotional intelligence. Yi-Man (2010) mentioned in his study that students in their scholastic projects not only learned academic skills and thinking, but also improved their self-confidence and self-esteem through their practice in the their projects. Therefore, they build self-confidence by discovering answers by themselves and knowing adults can be both assistants and consultants. In addition, students also developed better observational skills and a higher sensitivity towards the environment. They had better problem solving skills and acquired a full understanding of the new concepts through in-depth investigations. Students exhibited improved communication and social skills while performing their tasks.

Laura, Paivi and Erkki (2006) in their study asserted that there are four features of the scholastic projects method relevant to cognitive psychology. The most distinctive feature of project method learning is problem orientation, that is, the idea that a problem or question serves to drive learning activities. The second feature, construction of a concrete artifact, distinguishes project learning from problem-based learning. The third feature is learner control of the learning process, which leaves

scope for decision regarding the pacing, sequencing and actual content of learning. The last feature of project method is its potential for using and creating multiple forms of representation.

Brouette (2008) emphasized problem-solving via building a life-sized model of the human body for the project named 'Building Bob'. The project activities were engaged in the process of the three phases. The teacher listed the childrens' questions about the human body and highlighted the children's problem-solving abilities. She helped children to explore the human body through construction of the organs piece by piece and discovering the answers of each question by themselves. Brouette emphasized that children concentrated deeply on their investigations, and they were problem-solvers and decision makers in project activities.

Mitchell, Foulger, Wetzel and Rathkey (2009) examined a first-grade teacher's strategies, such as encouraging students' participation in project planning and independent problem-solving for integrating grade-level standards into project work. The participant was a teacher who had 36 years of experience in teaching. She had earned National Board certification and she had also received awards from both her district and state. The research site was in a suburban and middle-class area, which included Caucasian, Hispanic, Asian and African-American students. There were 22 students, including English as a second language learner, four gifted students, one student with autism, and one early-entry student. Data collection come from a four-week project within six class sessions representing all three phases of the project, including field notes, teacher and student interviews, and videotape observations. Results showed that the project work was a collaborative method which allowing students to propose their questions, make predictions, negotiate with teachers and peers, solve their problems through trial and error, and discover their creative and critical thinking abilities. The grade level standards were to be integrated into project work via teachers' full understanding of the requirements of the district standards and students' interests. The teacher had better methods to manipulate the standards to fit the children's interests rather than manipulating the children to fit the standards. In project work, the teacher felt sufficiently confident in her knowledge to integrate grade-level standard into the curriculum, and students focused on learning rather than on performance. In addition, the researcher recommended that other teachers should be encouraged to utilize project work with systematic support.

1.1. Brief History and Definition of Project Method

The most important job of learners, especially children, is to make sense of their world. The teacher should focus on his work at school to aid the child in this quest. There is no end to the questions that

children have about the world where live in: Where does the water for the bath come from? How do the vegetables get to the grocery store? Does the bus driver keep the money that the passengers pay to ride? Why does it rain? At school, when we are responsive to the interests of children, they are very motivated to learn.

One way that we can be responsive to children's interests is by using the project approach (Judy, 2010). Based on this point of view, the definition of project method must focus as a priority on learners, because they are the basis of educational processing, and all various activities and projects must be planned and directed according to their abilities, interests, and trends. The project method is not applied in schools just to fill the free time of learners, but to implement and achieve various educational, psychological and sociological aims and strategies.

Therefore, the project method is a teaching and learning model (curriculum development and instructional approach) that emphasizes student-centred instruction by assigning projects. It allows students to work more autonomously to construct their own learning, and culminates in realistic, student-generated products. More specifically, project-based learning can be defined as follows:

i. Focus on the central concepts of a discipline;

ii. Engaging learning experiences that involve students in complex, real-world projects through which they develop and apply skills and knowledge;

iii. Learning that requires students to draw from many information sources and disciplines in order to solve problems;

iv. Learning in which curricular outcomes can be identified up-front, but in which the outcomes of the student's learning process are neither predetermined nor fully predictable; and

v. Experiences through which students learn to manage and allocate resources such as time and materials (Moursund, 2002; Thomas, Mergendoller, & Michaelson, 1999).

Dewey argued that the purpose of education is to provide students with experiences that sustain and enhance their growth. Dewey did not use the term 'project' (William&Tomas, 1997), but the philosophy and educational meaning of most of Dewey's thoughts and opinions and their dimensions were around the importance of practice and projects with their benefits for students. That is why experience, for Dewey, is a process, both active and passive.

‘When we experience something’, Dewey states, ‘we act upon it, we do something with it; then we suffer or undergo the consequences. In addition, we do something to the thing and then it does something to us in return.’ (Dewey, 1916, p. 139). The result of this trying and undergoing is learning – learning from experience. So in his article ‘The Project Method’ (1918) Kilpatrick in he provided and popularized a practical approach to implementing Dewey’s educational philosophy which consists of general practical ideas of Dewey which focus on learners’ personal and mental abilities, activities, democractic social interaction, cooperative learning and experiences etc.

Recently, however, historical research has made great progress in answering the question of when and where the term ‘project’ was used in the past to denote an educational and learning device. According to recent studies, the ‘project’ as a method of institutionalized instruction is not a child of the industrial and progressive education movement that arose in the United States at the end of the nineteenth century (Bert, 2002). Rather it grew out of the architectural and engineering education movement that began in Italy during the late sixteenth century (Knoll, 1997). Knoll (2002) mentioned that the project method was introduced into colleges and schools when graduating students had to apply on their own the skills and knowledge they had learned in the course of their studies to problems which they had to solve as masters of their trade.

With some simplification, five phases in the history of the project method can be differentiated and I have added the phase of Dewey which is from 1896 to 1903. These phases are as follows:

- 1590–1765: At the academies of architecture in Rome and Paris, advanced students worked on a given problem, such as designing a monument, fountain, or palace.

- 1765–1880: The project became a regular teaching method; newly established schools of engineering in France, Germany and Switzerland adopted the idea. In 1865, the project was introduced by William Rogers at the Massachusetts Institute of Technology in the United States. Rogers was the founder of MIT, a highly influential scientific mind, and a leading educational reformer of the nineteenth century. Angulo, in his book *William Barton Rogers and the Idea of MIT*, recounts the largely unknown story of one man’s ideas and how they led to the creation of one of America’s premier institutions of higher learning. MIT’s long tradition of teaching, research, and technological innovation for real world applications are inexorably linked to Rogers’ educational philosophy. Emphasizing the ‘useful arts’, a curriculum of specialized scientific study stressing theory and practice, innovation and functionality, Rogers sought to revolutionize the standard

educational practices of the day. Controversial in an era typified by a generalist approach to teaching the sciences, Rogers' model is now widely emulated by institutions throughout the world. Exploring the intersection of Rogers' educational philosophy and the rise of technical institutes in America, this biography offers a long-overdue account of the man behind MIT (Angula, 2009; Gutek, 2009).

- 1880–1918: Calvin M. Woodward adapted the project concept to schoolwork. At his Manual Training School, students actually produced the projects which they designed. Gradually, the idea spread from manual training. Francis W. Parker was another pioneer of the progressive movement in the United States, he was the superintendent at Quincy, Massachusetts, where his research and work became widely known. In 1875, Parker had a great opportunity to put that philosophy into practice when was invited to work as a superintendent in Quincy, Massachusetts. He accepted the challenge, and developed the Quincy Plan. This was an experimental programme that abandoned prescribed curricula, rote memorization of meaningless information and harsh pupil discipline, replacing them with meaningful learning and active understanding of concepts. By 1879, in order to respond to the critics of this alternative model, Quincy students were subjected to state examinations in the traditional subjects. The model was quickly legitimized as successful when the results of the test were released, and it was found that Quincy pupils surpassed the scores of other school children in Massachusetts. However, for Parker the measure of success was not only academic performance, but also a humanized and respectful learning environment (Rippa, 1997).

- 1896–1903: John Dewey, along with his wife and several teachers, developed the approach over a period of seven years (1896 to 1903) at his laboratory school at the University of Chicago. Dewey challenged the current view of the period that knowledge was a fixed notion of truth waiting to be discovered. Learning had been viewed as a possession – a matter of class – that was a necessary and practical result of social standing (Ann-Marie, 2008). For Dewey (1910, p. viii) 'knowledge is not absolute, immutable, and eternal, but rather relative to the developmental interaction of man with his world as problems arise to present themselves for solution'. Dewey's notions of learning grew out of the basic tenets of the newly evolved pragmatic theory of knowledge. When Dewey moved to Columbia University, his colleague William Heard Kilpatrick popularized the approach as the project method (Kilpatrick, 1918).

- 1918–1965: William Heard Kilpatrick conceived the project broadly as 'whole-hearted purposeful activity proceeding in a social environment'. After being criticized by Boyd H. Bode,

John Dewey, and other leading American Progressive educators, Kilpatrick's approach lost its attraction in the United States, yet it received general approval in Europe, India, and the Soviet Union. Carleton Wolsey Washburne was an American educator noted for his innovations in school programmes known as the Winnetka Plan or Project. This plan grew out of the reaction of many educators to the uniform grading system that held all children to the same rate of progress. Children participating in the Winnetka Plan might be working in several grades at once. The curriculum was set up in two sections: the common essentials, which was grade work divided into specific tasks to be learned by each child individually; and creative activities, which included art, literature, music appreciation, crafts, drama, and physical activities. In the common essentials section of grade work, a pupil could move on as soon as the material had been mastered. The second section had no achievement standards: each pupil did as much or as little as he or she wished.

Washburne attended Chicago schools administered by John Dewey and Francis Parker before earning his bachelor's degree at Stanford University (1912) and completing a doctorate in education at the University of California (1918).After teaching in California schools (1912–14) and serving as a head of the science department at San Francisco State Teachers College (1914–19), Washburne returned to Illinois to become superintendent of schools in Winnetka, where he promoted early childhood education, created middle schools, and instituted guidance programmes in elementary schools. Later, he served as president of the Progressive Education Association (1939–43) and of the New Education Fellowship (1949–56).During and after World War II, Washburne played an important role in reorganizing the public school system of Italy (1943–49). He also directed the graduate division and the teacher-education programme at Brooklyn College in New York City (1949–60). He concluded his career as distinguished professor of education at Michigan State University in East Lansing (1961–67) (Encyclopedia Britannica, 1981).

Education history reveals Helen Parkhurst's Dalton plan from 1922 (Jerrold 1994).This plan required individual evaluation of children through their own projects, individual follow-up by teachers, written reports of such progress in every area of schooling instead of mechanical grading, and conferences among teachers and with parents about the success or failure of each child. But that was applied at the Dalton School in New York City, where classes were small, teachers had time (and still do) to carry out these imaginative possibilities, and it was just as important to assess the accountability of the teachers as it was to expect higher and higher levels of student outcomes. The nature of the Dalton Plan is such that the central developmental result refers to what is still a lasting deficit in education system: 'that the adolescents be able to experience constructive problem-solving

capably'. Further scope of this learning capability is built out of the ideas of self-management and life competence. Today, the Dalton Plan is mostly used in the Netherlands. In education on the Dalton Plan, two basic principles of the Parkhurst pedagogy are freedom as the first principle, and the second principle is cooperation or the interaction of group life.

- The 1970s: Kilpatrick's project method, acclaimed as the only adequate method of teaching in a democratic society, was rediscovered in the Netherlands and other European countries. Under the influence of British primary school education, US educators attempt to redefine the project, viewing it as an important supplement for the traditional teacher-oriented, subject-centred curriculum (Knoll, 2002).

The project method (Kilpatrick, 1918) was made famous by William Heard Kilpatrick, who emphasized the project method after studying the experiences of students in vocational agriculture and in the Future Farmers of America (FFA) organization in rural areas (Marlow, 2000).Knoll (1997) asserted that it should be noted that Kilpatrick was heavily influenced by Thorndike's psychology even more than by Dewey's Theory of Experience. According to Thorndike's 'Laws of Be Learning', an action for which there existed an 'inclination' procured 'satisfaction' and it was more likely to concluded that the 'psychology of the child' was the crucial element in the learning process. Children had to be able to decide freely what they wanted to do; the belief was that their motivation and learning success would increase to the extent to which they pursued their own 'purposes'.

The project method is an essential component of the triadic model of agricultural education programmes (Grady &Julie, 2007). 'A project is a problematic act which is carried to completion in its natural setting' (Stevenson, 1925, p. 43). The real value of the project method is that it connects school to the real world (Stockton, 1920). According to Stevenson (1925), the educational use of the word 'project' was borrowed from the United States Department of Agriculture, which used the term to describe planned investigations conducted by experimental stations and planned demonstrations conducted by the extension service. Albert (1927, p. 90) showed that 'a project is an activity, the aim of which is a result or accomplishment of an end, other than learning (i.e. the acquisition of knowledge, skills, etc.), which is of value to the pupil'. He further elaborated that the project method is a technique employed by a teacher who is a by-product of the project method. Although valuable, Albert acknowledged that the project method must never be the sole technique employed in

educating students. To do so, he argued, would prohibit 'the use of systematic organizations of knowledge, as tools for securing more knowledge' (Albert, 1927, p.107; Bhalla & Nauriyal, 2004). Earlier, Stockton (1920, p.167) concluded that 'since "learning to do by doing" is central in education, all subjects should be taught by a project method'.

From the previous paragraphs, we can appreciate that the word project as a meaning and acting was not new as it appeared from Dewey or Kilpatrick, it has emerged since 1590 at the academies of architecture in Rome and Paris, put it between the educators and researchers which the project method associated to Dewey and Kilpatrick, because the documentation methods and the media during the period of both of them has strong and effective role to be project method as a famous method belong to Dewey then Kilpatrick, so the documentation styles support the personalities of Dewey and Kilpatrick. Project work should not be the final goal of the education process. Rather, construction should be the starting point of manual training or, as Kilpatrick called the new subject, industrial art (Knoll, 1991b). Children should work with natural wholes before dealing with artificial parts, they would then be equipped to identify with their work and recognize and solve the identified problem (Knoll, 1997). Moreover children will gain more real interaction with the natural environment and its components, influences and experiences and as this interaction depends on the educational philosophy and traits of parents during the upbringing of their children, so they can apply the dimensions of project method in their environments, because the parents by their supporting of scholastic activities and projects, they will support the school to develop various creative, critical and emotional abilities of their children during their scholastic activities and projects whether in or out school classes.

Some of the literature refers to the project method and other sources mention project approach, so as these differences between method and approach which depend on educational vision and trend of researchers, moreover, their philosophy backgrounds, lastly their cultural schools for instance; Katz and Chard (1989) refer to the practices as the project 'approach' rather than 'method' or 'model' to indicate that it is one important element of an early childhood curriculum (p. 209).They propose the project approach based on Dewey's ideas as a way of working with children, so they might come to deeper understandings of the world they inhabit. Including project work in the curriculum promotes children's intellectual development by engaging their minds in observation and investigation of selected aspects of their experiences and environment (Kats & Chard, 2000, p. 2). Clark (2006) mentioned that, in addition to the three phases of a project, there are three components to consider when undertaking project work; content, processes and product. On the other hand (Judy, 2010;

Knoll, 1989, 1991a, 1991b, 1993, 1994, 1996, 1997; Stevenson, 1925; William & Tomas, 1997) in their investigations and researches have mentioned project method not project approach.

If we refer to works of reference such as dictionaries or encyclopedias, we can see different meanings of approach or method in their dimensions and components, and it is not possible that all these references will agree on the meaning, dimensions and components of approach or method to correspond and conform with William Kilpatrick as the pioneer of Project Method Theory. Knoll (1991a) asserted that in the first phase of Kilpatrick's work he focused on searching and experimentation, he also adopted *project approach* as the term of his work and project. In the second phase, Kilpatrick mentioned another alternative term, which is *problem method*. Then in the third phase, and after two years of research, he finally decided to adopt the term *project method* in1917.

If we realize any differences or paradoxes between researches about determination and definition whether project approach or project method, which one is correct? it will be in the end normal situation and as the result of their investigations, because it is the nature of science that distinction by flexible of searching and presenting various conclusions and results. I do not wish to enter more deeply into linguistic analysis and sink into this point with various philosophies, educational analyses and conclusions, because whatever the term used 'approach or method', will not change the general frame, contents, focused goals and philosophy of Kilpatrick's project, which was focused and based on the student as the first priority and the main goal of the progressive education movement by both Dewey and Kilpatrick.

An examination of the literature reveals several methods of classifying projects, such as agricultural project, environmental project, and scientific project…etc. (Pamela, 2008).Some of these projects have been to classify project which based on the purpose and outcomes like project method of Kilpatrick (1918, 1925), another project has been to classify projects based on the actions of the learners rather than the project's outcomes (Davis, 1927; Stimson, 1919). More recent projects, specifically in agricultural education, use a combination of learner action and purpose to classify projects (Camp, Clarke, & Fallon, 2000; Newcomb, MeCracken, Warmbrod, & Whitting, 2004). At some time we can note that there are many projects but in different fields and major, for instance; scientific method by Alexander Smith (Oliver & Nichols, 2001), project based on learning and assessment by Moss (1998), and project work by Fried-Booth (1997).

There are many schools administrating various projects, other schools also administrating various projects but under the name of project method, so there is a difference between project and project

method as educational philosophy and methodology in terms of dimensions, goals and strategies. Normally, a project has a single task or problem, usually engaged in by an individual or a group of students to supplement classroom studies. The project method involves a series of carefully planned projects or a single major project which designed to be the focal point for all instruction and instructional planning. For instance, at the end of a unit on ecology, a class could do a project in which they clean up a stream running through the school property. The project reinforces and supplements the unit on ecology.

On the other hand, still using the project method, the same class could have mapped out several projects (large group, small group, independent study) at the beginning of the unit on ecology. These projects, supplemented and supported by related classroom instruction, would be geared to accomplish the same goals as the classroom unit. Students would learn the same concepts, but through their own efforts via projects (James, Robert, Glen. Lois, & Karen, 1986).Whatever the names of these projects or activities in the schools, they will be together in the main focal point and trend that will support students for social interactions, because students are at the centre of the educational process and in the heart of the educational system in any society, whatever the nature or the level of the society, but the main point in the decision makers' interests must be an honest vision in their societies to achieve their educational goals and strategies.

1.2. Benefits and Obstacles of Project Method

Schools play a pioneering role in preparing children and young people for effective participation and responsible citizenship. There are significant responsibilities for schools in relation to providing an inclusive working and learning environment that affords all students and staff the opportunity to achieve their full potential. They must also respond to the specific creative needs of students, staff and community from culturally and linguistically diverse backgrounds (Robert, 2000). The structure of any education system is supposed to consist of multiple phases of theoretical and practical aspects of general educational objectives that can support and build various abilities of students such as creative and critical thinking, emotional intelligence, social interaction etc. These positive out-comes are not possible to achieve without practising and working in various school projects and activities. 'The structure of educational reflections is twofold, on one hand education must refer to the future that is discussed with aims, on the other hand education 'reality' can only be the present whatever the concept of time is used' (Oelkers, 2000, p.10). That is why we always advise our schools to adopt

and apply various activities and projects among students to encourage more interaction between students and their surrounding environment with their social situations.

There is no full or complete project that one can apply in the school without any obstacles, obstructions and problems, and like these aspects which depend on multiple factors such as: school administration, teachers 'traits and decisions makers' visions, and the trends and philosophy of society. However, many schools apply various activities and projects, but without any general plan, strategy, follow-up and evaluation…etc, or any specific ideology or faith of specific project as the project method. That is why their educational efforts and outcomes at the end of scholastic academic year will be dispersed, scattered and lost.

1.2.1. Benefits of Project Method

Teachers who wish to offer their children meaningful opportunities to apply the skills and knowledge they acquire through direct instruction may choose to incorporate project work into the curriculum. As children make careful observations and inquiries through their project work, they are likely to have a reason to use literacy symbol to represent and communicate to others what they are learning about their topics (Ann-Marie, 2008). As Dewey (1916) explains, much of our thinking is stored in symbols. It is reasonable to assume that what each child chooses to communicate to others in various activities. In this way, the project method can serve as a useful and meaningful complement to bea more typical, systematic, or direct form of instruction. Therefore, a further advantage of the project method lies in the context it offers for children to develop desirable dispositions or habits of mind towards learning, towards themselves, and towards others (Katz & Chard, 2000). Katz (1994b) asserted that we can see in childrens' work clear evidence that:

i. All young children have active and lively minds from the start;

ii. The basic dispositions to make sense of experience, investigate it, care about others, relate to them, and adapt to their physical; and cultural environment are dispositions within children from the start; and

iii. These in-born dispositions can flourish, deepen, and strengthen under the right conditions.

If orchestrated correctly, the project method has the potential to provide children with the right conditions under which to develop these dispositions. Finally, we can conclude from research that these dispositions may be damaged at an early age, if children are overly drilled in skills with

academic instruction and not given many opportunities to develop their investigative dispositions (Marcon, 1992).

According to the dimensions of individual differences, through practising project method, and methodological vision, we can attain various educational, psychological and sociological benefits on various levels of educational system.

Through implementation of the project method in schools, we can involve students in investigations of topics that are worthwhile and of potential interest to them. The teacher assesses the children's interest and understanding of the topic, he or she also helps the children to develop a set of questions to which their investigation will find various answers, and provides them with experiences that help to build further understanding (Helm & Katz, 2001). In project work and activities, students have many opportunities to explore relevant phenomena and to represent what they observe and what they learn. Students often work together in small groups on various project-related tasks. For instance, project work allows children to demonstrate their strengths through applying their creative and critical abilities, knowledge, skills, and dispositions in ways that are helpful to others (Beneke& Ostrosky, 2009). As teachers plan for project work, they anticipate what individual children know and they can do what they want to know or do and how they can accomplish their investigation. Implementation of the project method necessitates that teachers engage in what Pianta (2006, p. 239) calls 'intentionality purposefully which taking children's individual interests, skills and abilities into consideration when planning activities and responding to the children'.

Many teachers believe that the project method provides an effective context for teaching and learning both academic (Helm, 2000) and social skills (Schuler, 1998). Some teachers have reported that the project method is also beneficial in teaching young children meet state and local standards for early learning and in providing coherent programming for children who attend preschool on a part-time basis (Beneke, 2000).

Implementation of the project method is very important in increasing the students' motivation by engaging them in their own learning, improving student problem-solving and higher order thinking skills (Stites, 1998). It promotes meta-cognition and self-regulated learning through asking students to generate their own strategies for problem definition, information gathering, data-analysis, and hypothesis-building and testing, comparing these strategies against and sharing them with other students' and mentors' strategies (Daniel, Stephane, & Paraskevi, 2009). Teaching with the project

method enables students to work cooperatively with peers and mentors in a student-centered environment, where learners are encouraged to explore various topics of interest.

The collaborative nature of the investigation enhances and all of these valuable experiences as well as promotes a great appreciation for social responsibility (Scott, 1994). Hence, it also provides opportunities for interdisciplinary learning by engaging students in applying the content of different subject areas during the various phases of the project. The project method helps students to develop real world skills like the ability to collaborate well with others, make decisions, take initiative, and face complex problems. After completing a project, if students are asked to create a self-evaluation of the project, like writing a meta-report, this enables the students to focus on their learning process and allows them to see their progress. Self-evaluation gives students a sense of accomplishment and further instills responsibility for learning. Documenting the learning process also makes it easy to distribute results to audiences, with all the obvious advantages (Daniel, Stephane, & Paraskevi, 2009).

Ediger (2000), in his investigation on social studies education, asserted that there are several benefits from implementation project method, listed as follows:

i. Content is made clear and meaningful through the project method of learning;
ii. Interest in learning is fostered;
iii. Purposes or reasons for learning are clarified;
iv. Group cohesion is stressed in making and doing;
v. Child centred learning is being emphasized;
vi. Active engagement in learning is stressed;
vii. Psychomotor skills are exercised in ongoing lessons and units of study;
viii. A psychological sequence is inherent in the making of projects; and
ix. Social development is in evidence when pupils work collaboratively on a project.

From the previous paragraph we can appreciate that implementation of the project method among students is very important as the requirements of modern educational philosophy in order to achieve creative outcomes on the various educational levels, moreover; to get high guarantee to achieve our future vision of our planned strategies.

1.2.2. Obstacles of Project Method

Implementation of project method will achieve various educational, socially and psychological benefits as mentioned before, however, there are many obstacles that will be create problems in getting the full benefits from project method implementation in schools. These obstacles are different between schools. It depends on various factors such as: the financial support of project method implementation in the school, the experiences of teachers, availability of the project method tools, the role of parents and society to support the implementation of the project method and the nature and dimensions of the specific project.

Kilpatrick transferred the project method ideas from agricultural education to the state school curriculum. School and society were not to be separate endeavours (Ediger, 2000). Generally, the implementation of any activities and projects will give rise to some administrative or technical problems and obstacles, but these problems and obstacles need to be understood and overcome to achieve our goals based on the project method. Therefore, I will mention in this part various obstacles, difficulties and challenges. These points are not specific to or special just for the project method, but they are general for various project models such as; project approach, project-based learning, project-based science and project-based activities. These obstacles, difficulties and challenges are not of the same degree or level in all kinds of projects but differ between one project and another. Also it is not important to be all obstacles in all projects, but it depends on various factors, however; some obstacles are common between various schools' projects. I would like to mention here some previous studies about various projects, from which we can conclude there are many obstacles, difficulties and challenges, and like these studies will be its results more reflective and valid about general obstacles in compare with other theoretical reports or books.

I will mention here three themes of previous studies, each with its results and notices of specific obstacles and challenges, as follows:

1.2.2.1. Obstacles Encountered by Students

Krajcik, Czerniak and Berger (1998) describe case studies of eight students enrolled in two seventh-grade science classrooms. The case studies were constructed by two classroom teachers during a seven-month period that included a two-month introductory project, a week of training on working together and sharing information, and two subsequent projects, one entitled. 'Where does our garbage go?' and the other, 'Water, water everywhere! Is there enough to drink?'. Students, two

boys and two girls in each of the two classes, were selected as representatives of the lower– middle range of science achievement and on the basis of the likelihood that they would be informative interviewees.

Classrooms were videotaped and students were interviewed frequently. Cases were constructed for each student and each project using videotaped observations, artifacts from the projects, and interview results. Summaries were developed for how each student participated in each aspect of the inquiry. Results were described with respect to aspects of the inquiry process that students handled adequately and where those students had difficulty. Students showed proficiency at generating plans and then carrying out procedures. However, they had difficulties (a) generating meaningful scientific questions, (b) managing complexity and time, (c) transforming data, and (d) developing a logical argument to support claims. More specifically, students tended to pursue questions for preference rather than questions that were warranted by the scientific content of the project, and had difficulty in understanding the concept of controlled environments, so they created research designs that were inadequate given their research questions, and they developed incomplete plans for data collection. They also failed to carry out their plans systematically, they tended to present data and state conclusions without describing the link between the two, and they did not use all of their data in drawing conclusions.

According to the Krajcik, Czerniak and Berger (1998, p. 348), "we need to consider a range of scaffolds from teachers, peers, and technology that can aid students in examining the scientific worth of their questions, the merits of their designs and data collection plans, the adequacy and systematicity of their conduct of the investigation, and the accuracy of their data analysis and conclusions".

Similarly, Edelson, Gordon, and Pea (1999) report challenges associated with secondary students' ability to conduct systematic inquiry activities in high school science. One challenge is sustaining motivation for inquiry. Students often failed to participate or participated in a disengaged manner. Second, students sometimes are not able to access the technology necessary in order to conduct the investigation; i.e., they are not able to do the work. Third, students often lack the background knowledge necessary to make sense of the inquiry. Fourth, students are often unable to manage extended inquiry activities.

Another study by Achilles and Hoover (1996) reported poor implementation results for three middle schools and one high school classroom taking part in implementation of the project method

in school. Students failed to work together well, especially in small groups. The authors attribute these problems to students' lack of social skills. It is difficult, however, to evaluate the meaning of this study. A minimum of data is presented and, more important perhaps, the design of the project consisted of a highly scripted, problem-solving activity which may have accounted for the students' desultory participation.

Synteta (2003) mentioned that, kin implementation of projects among students which are complex endeavours involving many different activities, in particular, students generally have difficulty to:

i. Initiate inquiry; have coherent research questions;

ii. Define a research project; good research design and appropriate methodology;

iii. Direct investigations; find resources;

iv. Manage complexity and time; keep deadlines, estimate time needed to do a task; and

v. Collaborate and give feedback; articulating the work of others and give regular feedback.

Sloane (as cited in Rajab, 2009) mentioned in his report that some students as expected needed more help through the process than others, because there are individual differences between them, also some students have various psychological disorders like anxiety, loneliness, self-confidence, etc., which can be obstacles for teachers in order to achieve their educational goals among all participants in the project. Here, we can compare between the creative and traditional teacher in terms of how they deal with and face all the students working on projects with their various and different psychological cognitive, emotional and behavioural characters.

1.2.2.2. Obstacles Encountered by Teachers

Krajcik and colleagues (1998) describe a four-year University of Michigan research study designed to gather data from teachers who were in the process of implementing project-based science in their middle school (four teachers) and elementary school (one teacher) classrooms. All participating teachers attempted to implement the same six to eight-week projects developed by the National Geographic Kids Network. Data sources for the study included audiotapes and videotapes of science lessons, interviews with teachers, and informal conversations. Researchers constructed case reports which focused on the challenges and dilemmas teachers faced as they attempted to enact features of project-based science. It should be noted that the study involved teachers' attempts to learn and implement an established PBL curriculum, complete with project descriptions, directions for

activities, and instructional materials. This implementation situation may be qualitatively different from one in which a teacher decides to plan, develop, and implement a PBL activity on his /her own.

Sage (as cited in Atia, 2006), in reporting on a descriptive research study of elementary and middle school classes in science and language arts, identifies several design challenges associated with teachers' use of problem-based learning that may be generalizable to non-problem-focused projects. Chief among the design problems identified by Sage were difficulties of developing problem scenarios, the tendency for problem scenarios to be structured in such a way that they limit students' inquiry, the difficulty of aligning problem scenarios with curriculum guidelines, the time-consuming nature of developing problem scenarios, and the dilemma associated with using authentic problems, the more limited was students' power and authority to impact a solution. Sage also reports on enactment problems including difficulties in finding the time to implement problems and in facilitating multiple student groups when those groups have students of varying abilities.

Thomas, Mergendoller and Michaelson (1999) conducted a survey of PBL teachers which was designed to elicit or construct principles (conditions and strategies) associated with successful implementation of project work. Twelve middle school and high school teachers were selected for their status as expert practitioners in the eyes of their peers. A semi-structured telephone interview schedule was developed in order to elicit considerations and strategies associated with these teachers' planning and enactment activities. The interview consisted of 43 related questions, categorized into recurring, qualitatively distinct themes. At the end, the teachers' responses were organized into ten themes. The themes were constructed to reflect the larger issues that seemed to recur across teachers' answers to the interview questions.

The principles were summaries of teachers' strategic responses to the issues raised in the themes. An example of a theme was 'creating a positive learning environment'. Principles associated with this theme were: (1) establish a culture that stresses student self-management and self-direction; (2) use models or examples of excellent work; and (3) create a physical environment that will facilitate project work.

Fengling (2006) mentioned, in his investigation, that there are various obstacles during implementation of the project method among Chinese students in China. The biggest obstacles are teachers' attitudes toward the child and the child's learning, the traditional view of the child as

dependent on adults is still dominant in the majority of Chinese kindergartens, and the majority of kindergartens in China are still like islands, isolated from the rest of society. The teachers worry that parental involvement in children's learning at kindergartens will be a challenge to the teachers' authoritative position. Finally; there is a gap between kindergarten teachers' knowledge about children's learning and applying that knowledge to kindergarten activities.

Katz and Chard (2000) explained that for many teachers the project method can seem to be a complex way to teach. From their communications with teachers who have attempted to implement the method, they concluded: 'Projects are easier for some teachers to implement than others for a variety of reasons. These individual differences may be related to teachers' prior teaching philosophies, practices, and experiences, or to institutional, collegial, or administrative contexts in which they work.' Furthermore; even though project work is organized around a three-phase structure of investigation, representative, and culmination, there are no specific directions to use such as a teacher's manual or a guide for writing lesson plans. If a teacher uses the language associated with the typical lesson plan required for teacher-generated activities, this practice may serve as an indication that she has not yet developed a full understanding of the processes involved in project work.

1.2.2.3. Obstacles Associated with School Factors

School factors, which facilitate or impede the successful implementation of any project in classrooms, is a popular topic among project teachers in schools. It is not as popular as a research focus, possibly because of the difficulty associated with conducting this kind of research.

Edelson and colleagues (1999) described a number of practical constraints associated with the organization of schools that interfere with successful inquiry. These factors included fixed and inadequate resources, inflexible schedules, and incompatible technology. Blumenfeld, Krajcik, Marx, and Soloway (1994) add class size and composition, and district curricular policy, as restrictions that interfered with the enactment or project. School factors were the prime impediment reported by Hertzog (1994) in a summary of how a project was operationalized in an elementary school setting.

According to Hertzog, the physical organization of the school, limitations on time available for learning, and the perceived need on the part of teachers to structure time in order to cover all

academic subjects, tend to interfere with the effectiveness of project-based learning for integrating subject matter areas and providing for in-depth learning.

Khaled and colleagues (2009) emphasized among various scholastic obstacles in the schools of the State of Kuwait which block and frustrate implementation of various educational projects and activities that can support students' creative and personal skills and abilities during their practice. These obstacles are as follows:

i. There are not enough cultural plans in the schools to support and develop creative abilities among several school projects and activities;

ii. There is clear scholastic negligence in support for school projects on various students' levels;

iii. There is not enough cooperation between the school administration with teachers and parents in the specific decisions about many aspects of scholastic projects;

iv. There is high number of students in the classes that will be difficult for teacher to transfer his/her knowledge to each student, and as this point will create blocks between the teacher and students to achieve the educational objectives;

v. There is not enough educational and psychological background of teachers for dealing with scholastic problems and creative characteristics of students during their practice of the project method;

vi. Teachers focus on the traditional education system more than the modern system;

vii. There are no attractive aspects in the school curriculum that can support students' in various personality and cognitive levels;

viii. There are no scholastic specific plans for support and enhancement of creative and talented students in various projects and activities;

ix. Most scholastic curriculum focuses on (theoretical) memorizing more than (practical) projects and activities that will support various abilities and skills of students; and

x. There is not enough financial support in some schools to create then support various activities and projects.

CHAPTER 2

THEORETICAL PERSPECTIVE OF PROJECT METHOD AND STUDY VARIABLES

Chapter 2

Theoretical Perspective of Project Method and Study Variables

Chapter 1 gave a general introduction, brief history, definitions, and the benefits of and obstacles to the project method. The theoretical perspective of project method and study variables will be under the discussion and analyses in the following part of this study.

2.1. Theoretical Perspective of Project Method

2.1.1. Processes of Project Method

There are two basic approaches for implementing the project method. According to the historically older approach, the students take two steps. Initially they are taught in a systematic course of study certain skills and facts, then they apply these skills and knowledge, creatively and self-directedly, to suitable projects. According to the second approach, the instruction by the teacher does not precede the project, but is integrated with it. Firstly, the students choose the project, and then they discuss what they need to know for solving the problems and learn the required techniques and concepts. Finally, they execute the chosen project by themselves. In both approaches, time for reflection should be providing during all phases of project learning, giving students the opportunity to evaluate their progress. Many teachers, especially vocational and industrial arts educators, use a series of small projects in order to help students develop increasing competence in practical problem solving (Ronald, 2010).

The project method was accepted as an effective learning activity by nearly every work in the corpus of literature (Kilpatrick, 1918, 1925; Talbert, Vaughn, & Croom, 2005). However, only a few scholars have addressed the process by learning which accrues with the project method. Stimson (1919) asserts that the project method is correctly implemented through induction and then application. Accordingly, the ‘educational cycle’ is completed by ‘the movement from observed data of agricultural production, to general laws and principles, which is following by the reverse movement, which is embodied in the application of the laws and principles of science’ (Stimson, 1919, p. 93). This process is remarkably similar with the Experiential Learning Model proposed by Kolb (1984) in which learning occurs with concrete experience, reflective observation, abstract conceptualization, and active experimentation.

Kilpatrick (1918, 1925) articulated the clearest processes for the project method. He presented distinct processes for each of the project types which he proposed (see Figure 1).

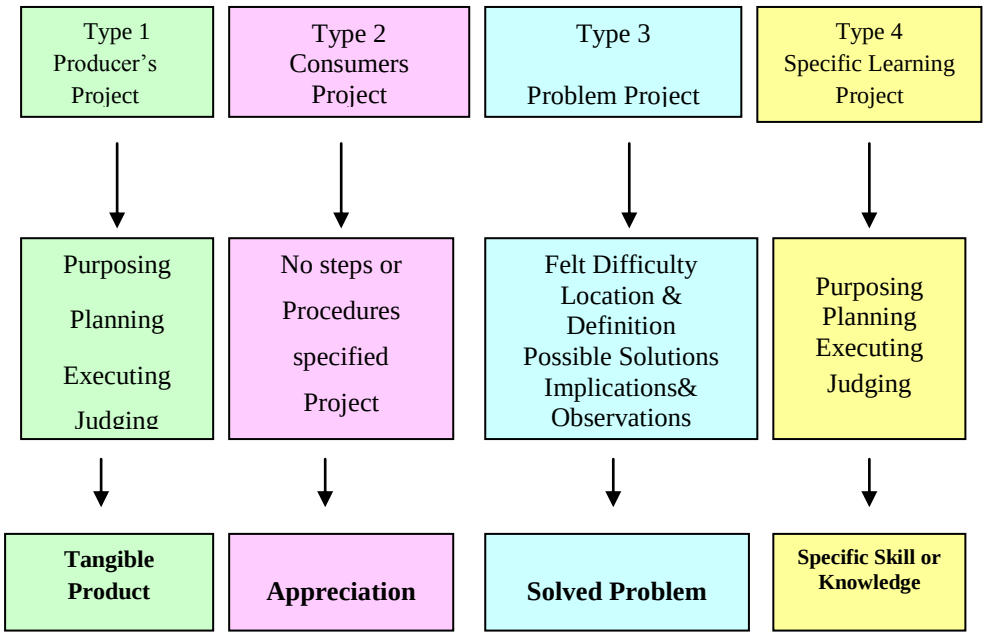

Figure1. Project Method Processes of Kilpatrick

Kilpatrick (as cited in Grady &Julie, 2007; VanAusdal, 1988) referred to type 1 projects as producer's projects, where the purpose is to produce something. However, products of type 1 projects are not exclusively limited to things which produced by the hands. For type 1 projects, Kilpatrick proposed four steps required for successful implementation:

i. Purposing.

ii. Planning.

iii. Executing.

v. Judging.

Beyond the tangible product, Kilpatrick indicated that a secondary outcome of the type 1 project is increasing social activity in the classroom. We can note that there are no steps or procedures specified. In type 3, which is problem project, it consists of:

i. Felt diffidently.

ii. Location and definition.

iii. Possible solution.

iv. Implications.

v. Observation and experimentation.

The fourth and last type focuses on a specific skill or knowledge, and it consists of four steps (as type 1):

i. Purposing.

ii. Planning.

iii. Executing.

iv. Judging.

We can see that the steps in the fourth type are similar to the steps in the first type, but of course the proposed outcomes of both types are different, because the main objective of each type is also different, so automatically its outcomes will be different. Here, we can also note that Kilpatrick's process consists of various aspects which are theoretical and practical aspects, and that the main importance is the integration and interaction between these aspect to achieve high quality outcomes whether on the level of the students' or teachers' creative skills and abilities.

The processes of the project method are different between projects, so it is not important to see all the previous types and steps of project method process (as mentioned before) in all other projects, because many factors will reflect on these projects as their dimensions, environment and technical factors; and the school facilities…etc. For instance; in Yvonne Kogan's project (2003), entitled'A Study of Bones', the processes of the project method are well illustrated, so the dynamic processes intrinsic to the implementation of the project method are realized when the teacher begins to encourage children to:

i. Develop their own questions about the topic under investigation;

ii. Make predictions about possible answers;

iii. Think of ways to test their hypotheses;

iv. Negotiate with the teacher various ways they might represent their findings; and

v. Take time to solve their own problems through trial and error.

In this project, the teacher used the customary processes of systematic, direct instruction to cover the content of the project and have children produce prescribed results. In such cases, the teachers' filters (from preexisting general pedagogical knowledge and beliefs) may prevent them from recognizing that there are other ways to offer opportunities for learning in their classroom, some that are likely to develop their childrens' intellectual capabilities as well as foster their academic skills (Clark, 2006).

Wang (2011) mentioned that some other processes of the project method support the teacher's role to provide information on the design process as the student teams select and develop a prototype and all documentation. Students are introduced to design process information as they work on the project. A six-step design process methodology is provided as a starting point: Problem identification, preliminary ideas, refinement, analysis, decision, and implementation. The final progression for applying the project method is to fulfil Kilpatrick's vision and have projects that are purposeful and completely student directed.

When a student has selected an appropriate project; a plan for carrying out that project must be prepared. The plan should be included the following elements:

i. A description or sketch of the project itself;

ii. The objectives of the project, in terms of skills, information, concepts, attitudes to be learned;

ii. The equipment, supplies, and facilities needed to complete the project, including cost estimates;

iv. The activities to be performed;

v. The record-keeping method to be used by the student, if a record is to be kept of how the project is progressing; and

vi. The methods of evaluation to be used, by whom (student, teacher, parent), and at what points in time (James et al., 1986).

Waks (1997) concluded by proposing a reformulated project method for the post-industrial society consisting of six elements: (1) negotiation of the group project, (2) situation of the group project in a social context, (3) assessment of incident learning potential relative to learners' needs, (4) needs assessment of background knowledge, (5) facilitation of project tastes, and (6) project assessment and learning integration. The first two elements draw significantly from Dewey recognizing the

importance of learner participation in a social context. The last four elements are extensions of the criticisms of Kilpatrick's work and recognize the teacher as an integral part of the process from identifying the needs of learners to the teaching of skills and abilities in order to the facilitation of project.

To make the same point here about the elements of project method, it will be different between one specific project and another, so it depends on their objectives, vision, levels, dimensions and surrounding environment with their educational, psychological and cultural impacts.

2.1.2. Criteria of Effective Project Method

Where do these projects come from? Who selects them? One option is for the vocational technical instructor to give students a prescribed list of projects to be completed. This allows the instructor to have the materials available in advance and ensures that students will be learning essential things. The second option is to allow students to select projects freely. This does not allow the school to pre-order supplies and does not ensure that objectives will be met. The third option combines the benefits of the first two options and involves providing students with a list of projects that all meet a specific objective (James et al., 1986).

The following criteria can help in deciding which projects are acceptable. An acceptable project is designed to do the following:

i. To meet a definite goal (programme objective, occupational competency, or personal educational objective which based on an individual career goal or felt need);
ii. To fit the student's level of motivation, maturity and capabilities;
iii. To be of meaning and value to the student as an individual;
iv. To stimulate experimentation and creativity;
v. To integrate theory and practice;
vi. To be practical in terms of the availability and cost of equipment and material, the time required and the space required; and
vii. To place the responsibility for learning on the student (Maude& Mary, 1961).

The following questions can aid students in selecting an appropriate project:

i. Do I have the skills and knowledge of tools, techniques, process…etc. before completing my project?

ii. Do I have readiness and acceptance to enter in the project? (Wang, 2011)
iii. Do I want to do this?
iv. Will it develop ability that I need?
v. If it is a home project, will my family approve?
vi. Is it difficult enough, but not too difficult?
vii. Does it have something to plan or manage?
viii. Is it something that is practical and useful?
ix. Do I have time?
x. Will it help me learn something I need to learn? (Maude& Mary, 1961).

2.1.3. Roles of School Administration to Support Project Method

Today schools face a unique set of demands. In fact, they are expected to provide an education in basic skills, to widely varying student populations, while at the same time preparing their graduates for a technologically sophisticated workforce (Schlechty, 1997). The school administration plays an important role in the student-teacher process, in addition to arranging teacher candidates' placements and approving the professional development of educators (Student Teaching Handbook, 2003). The perennial challenge facing school systems worldwide is how to improve student learning outcomes. In the pursuit of improvements, educators introduce various innovations (Gamage & San Antonio, 2006). Today, most of these innovations are being introduced in the field of educational management in order to encourage decentralization and implementation of collaborative school governance (Anderson, 1998; Chan & Chui, 1997; Walker & Dimmock, 2000). Schools are also expected to compensate for the shift in society that affects children and their families, such as (a) the change from the traditional worker-homemaker family structure to that of either a two-worker or a single-parent family structure; (b) the growing incidence of poverty and economic instability experienced by families; (c) the increased incidence of family transience; and (d) the growth of commercialism, violence, and sexualized behaviour depicted in popular culture (Hodgkinson, 2003). Moreover, as a result of school bus services and the significant increase in school size experienced in many regions, schools educate children in a more impersonal social context far removed from a student's family and community life (Ornstein, Behar-Horenstein,& Pajak, 2003).

In *Democracy and Education* (1916), Dewey explains that the fundamental purpose of education is preparing students to function productively as adults in a democratic society which could afford equal opportunity for all, regardless of social class race, or gender. Also in *Experience and*

Education (Dewey, 1938, p. 34), he expresses his conviction that '...democratic social arrangements promote a better quality of human experience, which is more widely accessible and enjoyed, then doing non-democratic and antidemocratic forms of social life'. Similar to other educators, he wants children to have educational experiences that foster the greatest learning for the greatest numbers. The difference between Dewey and his contemporaries, both traditional and progressive, is on how educational experience comes and its aims. Dewey sees educational philosophy becoming mired in divisive -isms and he criticized both traditionalism and child-centred progressivism as miseducative for missing the opportunity to fully equip students with necessary knowledge and skills for life in a democracy. He disapproved of traditional educators who seemingly stressed subject matter at the expense of the child's individual interests, and progressive educators who focus on the child's traits at the expense of society's needs for students to understand contemporary issues and to learn their society's history (Dewey, 1930, 1938). Dewey's goal is for education to make us the problem solvers employing intelligent thinking. 'For Dewey, his "project in life" was to intellectualize practice, to have all of us live intelligent lives and not to "practicalize" intelligence' (Eldridge,1998,p. 5).Nowadays, can we believe that the school under supervision of school administration which consists of the principal and his/her staff can play an important role to prepare and promote students as free and democratic citizens who can face various social situations by their life experience, creative abilities, critical ideas, visions and trends? Can we trust school administrations to build and create a person who can support life's values, social skills and creative with critical thinking?

The school as an educational foundation is supposed to create various life experiences, knowledge, sciences, skills, progressive educational ideas, with supporting and developing their cognitive, behaviors abilities, educational methods and projects etc. Students should be satisfied and contented in their demands and needs from their schools, otherwise they will face kinds of frustrating situations in and out of school, and then the results will have side effects on their lives. The general school atmosphere, environment and working need to be appropriate, so that students may learn and achieve their goals and desires. The nature of dealing with interaction and working among school administrative staff must be at a high level of development, because it will reflect on the school's outcomes. David (2005) asserted that schools should help students to understand the importance of experiences and to develop their skills and competences in the following areas:

i. Live learning;
ii. Literacy/ innumeracy;
iii. Critical thinking;
iv. Personal autonomy/efficacy;
v. Workplace competence;
vi. Character development;
vii. Democratic citizenship;
Viii. Care and compassion; and
ix. Fairness/justice/equal opportunity.

There is no doubt that behind any effective and successful project must be a developed and distinguished school administration which is supposed to believe in and apply various progressive educational ideas and contents in the scholastic environment in order to get creative results and results on the various educational levels.

The school administration consists of all who work in the school as principal, principal's assistants, sociological and psychological counsellors, teachers, office employees, technicians, supervisors, librarian…etc. I will go more deeply by discussion and analyses into the roles of the school administration through two directions. First, the roles of the school principal to support the project method, because he or she is the main person who can take the high administrative and technical decisions, also determination of the developmental and educational plans, strategies and policies for the school. Second, I will discuss the roles of the teachers by analysing the dimensions and aspects of their work with its effects on the project method.

2.1.3.1. Roles of School Principal to Support and Be Effective in Project Method

School principals have many responsibilities in assisting teachers, support personnel, and students to achieve various educational objectives. Moreover, they possess a leadership position to help others as well as themselves to grow, develop, and achieve the school's plans. Schools of education training pre-service principals need to stay abreast of the latest trends that truly develop leadership characteristics in vital areas of the total endeavours of the school. In which areas of the total school should principals assist their teachers to achieve well? (Marlow, 2006).

What about activities and projects, how can the principal support them among students? The technical, cognitive, and creative demands of project method need a distinguished and creative principal who can apply all aspects of project method in order to achieve its goals and strategies in the school.

A distinguished school generally equals a distinguished principal, so whatever creative aspects, activities and projects are present in the school, it will reflect on a successful principal, because in the end he or she is the leader of the school, and responsible for whatever positive and negative educational outcomes, lessons, activities and aspects in the school.

Research has consistently shown that principals play a significant role in school reform efforts. Research on school effectiveness generally refers to effective school research, and focuses on principals and their roles (Grady &Julie, 2007; Kermit, 2009; Lickona, 1991; Marlow, 2006). These studies consistently found that the principal was the key for an effective school. Research studies have found that the unique position held by the principal, as the one person in a school who is responsible and empowered to oversee the entire school, places him or her in a powerful position to coordinate the entire school operation and move it forward, the research further revealed that the most effective principal has a clear vision of how the school could serve its students; had aligned resources and priorities with the vision; and could engage other key players, within and outside the school, in achieving the goals which embedded in the vision (Education Encyclopedia, 2011).

Actually we need principals who believe of educational and psychological benefits of applying various projects and activities in the school, so we need principals who can support and enhance their school to apply all aspects of project method in all the school's environment as the school's farm, library, laboratory and classes, because the school is not only a place to get knowledge, but also to get life experiences, skills, trends and values, and students cannot get them most of these aspects from the curriculum but from school activities and projects, as in the project method with its progressive ideas and dimensions.

2.1.3.2. Roles of Teacher to Support and Be Effective in Project Method

Schools are one of the first places where a child's behaviour and future educational success is shaped. Teachers are carriers of either positive or negative behaviour towards students. The reason why the first years of school are so critical is because childrens learn the base of their educational life then. Teachers should love their career in order to convey enthusiasm, to assist, and provide

a warm environment for the students. Teachers are the second mother for the students because they spend a lot of time with their teachers. At the same time, a real teacher becomes one through many years of training and experiences in the field. In the same way, mothers are not born great, mothers look for the best for their childrens and one of their goals is to raise their children to become professionals and pioneers for the society. Some of the mother's roles towards their children are to give them care, love, and respect, to lead, instruct and try to form a safe and pleasant environment in their homes. Are these attitudes of mothers toward their children related to what the role of the teacher should be with students in the classroom? If not, what should be the role of the teachers? (Rose, 1997).

Teachers do not just give lectures and walk out. An ideal teacher is someone who seeks the participation of all the students, takes students' opinions into account, uses different teaching media and makes learning a fun activity. As is rightly said, a good teacher teaches from the heart and not from the book. So to take up a job as a teacher one must have passion for the subject which he is teaching so that he can pass the same passion to his students. One of the important roles of a teacher is also that of respecting a student's opinion. A teacher must always keep learning new things and he must keep himself updated with the latest developments in his subject. These are some of the qualities of a good teacher. Apart from dealing with students, a teacher also has to maintain a dialogue with parents, so they nurture their children in the right manner (Geeta, 2010).

Some teachers restricted their role to teaching. The different government organizations and departments provided guidelines for the role and responsibility of a teacher. A teacher plays multiple roles in the school. The role of teacher is assessed in terms of his/her attendance in the class, completion of the course and interpersonal relations in the school, while hardly any indicator has been developed to estimate the performance of teachers on the basis of learning achievement of the students (Nilay& Naimur, 2008).

So what kind of teachers' qualities are we looking for in order to support the project method? Defining teachers' qualities has been both problematic and elusive. Three terms heard are highly qualified teacher, effective teacher, and good teacher. These terms focus on teachers' characteristics or qualifications, teaching outcomes, and teaching practices (Dan, Hild, & Jennie, 2008).Progressive education is looking for the positive and effective teacher who can make his students like a dynamo in the class by their participation, sharing and intersections with various educational projects.

We need to control and make balance for students' activities, and we can explore and develop the creative abilities of students if creative teachers are available with their widely creative experiences and abilities, these abilities can change the daily routine in the class, during and after their interactions with their students. So in State of Kuwait as example we must change our traditional education in order to achieve our goals on various educational levels. Dewey (1938, p.28) stated 'Just because traditional education was a matter of routine in which the plans and programs were handed down from the past, progressive education is a matter of plan with less improvisation'.

The traditional style of teaching is based on the concept of transmission model of instruction in which basic skills and facts are taught through direct instruction. In this style, knowledge is transferred from the teacher to the student (Clarck, 2006) without any interest in various aspects and educational dimensions like individual differences, development of creative abilities, indoor and outdoor activities, the democracy of education, and students' participation in educational processing. The traditional approach for teaching is as ancient as formal teaching itself, which involves the directed flow of information from teacher as sage to student as receptacle. How effective this transmission has been can be tested by posing various exercises to the student (Derek& James, 2003).

The interaction between teacher and students is very important in order to enhance social and national values that will be the result of educational processes which are based on the roles of student and his activities in-out class. The responsibilities of teachers to support project method activities and goals are supposed to be corresponding with progressive education thoughts and principles in order to get high guarantee to achieve educational objectives.

Kilpatrick (1925, 1929) claimed that it was the teacher's responsibility to help children who have seen a purpose for every activity through keeping the purpose of the project in mind, the student could take the initiative to plan, experiment, problem solve, and evaluate the results. In one example, Kilpatrick (1925) emphasized that when a boy learns to plant corn, he learns better by solving the problem himself, rather than basing his actions on knowledge obtained from books. He opposed setting out subject matter in advance because it would stifle the creativity of the child (Cremin, 1961). Kilpatrick theorizes that discovery, 'first-hand experience' should be the building block of every learning activity; learning from others, 'second-hand experience,' was permissible only if primary experiences were too costly or time-consuming (Bode, 1927). Kilpatrick's (1925, 1936) bias

toward the child tends to devalue the integration of inherited knowledge with the child's everyday experiences, which formed the basis of Dewey's theory of experience.

2.2. Theoretical Perspective of Creative Thinking

Educators of young students are realizing the importance of creativity, imagination, and divergent thinking in the classroom (Epstein, 2008). While many systems of schooling around the world have claims to strive for these traits, historically children that exhibited creative predilections did not make the best students. Historical figures of genius such as Albert Einstein (who said that 'education is what remains after one has forgotten what one has learned in school'), Erik Erikson (who was rejected by both Jewish and gentile due to his mixed heritage) and Thomas Edison (told by a schoolmaster he had a 'disarranged mind') were all written off as school failures because of their inability to conform to the requirements of 'schooling' (Eugene& Jennifer, 2009). For the policy makers who is very important to include their educational plans and strategies, creative projects and activities in-out school, because we cannot discover without this, follow-up, educate and support creative abilities for our children. 'In modern societies…two defining characteristics of childhood are very important, the institutionalization of childhood and the position of the child as a minor' (Oelkers, 2005, p.1). These aspects are very important to understand the nature of the surrounding environment of the child as a minor, and by this realization we can determine the main creative plans and strategies for our children.

Interest in creativity research began in 1950 when Guilford gave a speech on this topic to the American Society of Psychology. Since then, countless research studies have been conducted (Millward & Freeman, 2002). Since the early 1960s, the USA has witnessed a hidden revolution in aims and methods of education concerning reative problem solving and creative expression, this led to changes in the aims of education (Mansy, 1981). Creative activities refer to a set of beforehand planned and carefully studied activities that have the potential to attract creative individuals and effectively enhance their creative abilities too. Therefore, it reflects on their behaviour and thinking. They enable those who perform them to confront the various contradictory situations and life problems in a distinctively logical and creative manner. Guilford (1956, 1957, 1959, 1971) mentioned that creative thinking as a set of student-centred activities that accord with students'

psychological, physical and mental dispositions, abilities and characteristics, so they can develop the components of the creativity construct; fluency, flexibility, originality and elaboration.

According to Edgar, Faulkner, Knobloch and Morgan (2008), fluency is described as generating many ideas, and flexibility occurs when a person easily shifts his or her perspective about a topic which has been taken into consideration and it has been explained as conceiving new ideas or solutions; and elaboration is the ability to build on other ideas. Creative individuals generate ideas which are unusual and defy the crowd but these ideas are viewed as irregularby their colleagues. This process is parallel to researching and then buying stocks which sell at a low price-to-earnings ratio. Creative individuals try to convince people of the value of their ideas. So, these ideas have a great value. Creative individuals move on to their next unusual idea, they do not stick with the same idea forever. This process is parallel to selling stock at a profit rather than holding on to it indefinitely. Urban (2006) classified creative thinking into three components; the cognitive aspect, personality, and the environmental condition. The cognitive aspect includes divergent thinking, general knowledge, domain-specific knowledge and skills. Therefore, many researchers agree that creativity and intelligence are separate constructs, that is, more intelligence does not necessarily mean greater creativity. Threshold theory assumes that, below a certainIQ level, which is usually said to be about 120, there is some correlation between IQ and creative potential, while above it there is no correlation between previous variables (Barron, 1961; Getzels & Jackson, 1962; MacKinnon, 1962).

Torrance (1969) mentioned that if we want to develop creativity, we must renew curricula, techniques of evaluating the mental and affective development, and scholastic achievement, as well as methods of teaching and supervision. Some researchers, such as Al-Abdellah (1991), have asserted that creativity means developing what is familiar, enlarging its scope, maturing its potentials and solving its contradictions, on the one hand. On the other hand, the creative process is not a matter of individual geniuses, but it is a matter of inspiration. Rather, it is a material and social event. Research has proved that creative thinking abilities exist in all people, but people differ in their creative abilities and the way which they express these abilities.

It has been said that students lose their creative ability because of the structure of the educational system in today's society. Because the interaction between the person and the learning context is what determines creativity (Gardner, 1993; Sternberg & Lubart, 1995), we recommend teachers help

students to develop and bring out their creative abilities. Research has revealed strategies that promote creativity in students which teachers can implement in their classrooms (Hennessey & Amabile, 1988; Torrance, 1967). Edgar and colleagues (2008) summarized (see Table 1) a list of strategies that can be used in order to help teachers create and facilitate an environment that promotes and develops creative thinking, as follows:

Table 1.
Techniques to Promote Creative Thinking in Classrooms

Before class begin	During class
• Establish classroom rules that promote openness among students to generate ideas. • Be supportive, but allow students to develop Independence and initiative. • Set the stage for creative thinking by having a list of topics to start the creative process. • Use real-life examples and mistakes as case studies to generate further thought and possible answers. • Resist the temptation to follow a dictated path, such as subservient class schedules and assessment measurements.	• Encourage students to create, discover, explore, imagine and suppose. • Be warm and supportive but allow students to develop independence and initiative. • Brainstorm ideas and encourage students to ask questions. • Promote a team concept, work to achieve common goals, and foster a team spirit among students. • Celebrate mistakes. • Recognize and tolerate the unusual. • Help students resist peer pressure to conform for conformity's sake. • Model expected student behavior. • Help students make constructive evaluation of their work, and don't overuse evaluation. •Reward students for doing things differently and creatively.

Mansour (1989) found that the issue of creativity can be viewed from different perspectives since it is a multifaceted phenomenon. It can be viewed as the process in which the creative production occurs. Bartzer (2001) emphasized that the creative thinking process is a complex process and it is fulfilled in four steps; preparation, incubation, enlightenment, and approval:

i. Preparation includes approaching the problem systematically and logically;
ii. Incubation follows the preparation step. As there is no control of consciousness in this period, new synthesis and original ideas appear;

iii. Enlightenment is the step where the individual makes various syntheses from among the information obtained in the previous step and finds new solutions; and
iv. Approval of the findings is a conscious and logical step.

According to Tolga, Recai and Sibel (2009), a creative person is the one who searches for new fields, makes new observations, makes new guesses, and proposes new implications in several situations.

Creative thinking relates closely to the psychology of creativity as a whole, viewing it as a compound psychological phenomenon. Until this century, creativity as a mental entity was thought of as divinely given and therefore unapproachable. The British scientist Spearman was the first to present a scientifically acceptable interpretation of the creative process, that interpretation is based on intelligence(Abdel-Ghafar, 1979), yet most researchers have not given Spearman's view due attention. They follow the steps of Guilford who presented a new theory about mental composition, in which he identified 120 mental performances. Guilford (1967) stated that mental factors that contribute to creativity are included in the set of the mental factors included in absolute thinking, referring to the existence of non-mental elements, e.g., perceptive and affective elements that contribute to the success of creativity. One's interests and attitudes function like motivation features. Some researchers present creativity as the outcome of several mental and psychological processes that include sensitivity for problems, and setting and testing hypotheses, which is preceded by comprehensive perception of the core of the problem or the problematic situation (Zidan, 2006).

Guilford (1957) found creative production as the schemata of a number of simple mental abilities. These schemata differ according to the field of creativity, among these abilities are verbal fluency, the ability to produce words that meet given conditions quickly, ideational fluency and the ability to produce a number of ideas that meet given criteria in a given situation.

Socialization plays a crucial role in detecting and enhancing the skills and abilities of creative performance in individuals in different ages. Qandil (1990) mentioned that the society and the culture are viewed as influential determinants of one's behaviour, and socialization is viewed as learning social roles. Regarding the effect of the environment on creative individuals, Al-Deriny (1975) found that the social, psychological and material reality surrounding the family plays a

paramount role in the emergence of the person's creative abilities and dispositions and enhances them according to various educational and psychological techniques.

Al-Alosy (1985) emphasized that another social institution that complements the family is the school, which plays a significant role in detecting and developing creativity in students. Considering the individual differences and providing the students with opportunities in order to learn and think according to their potentials and aptitude entails adapting the educational environments that can help the student to attain the utmost of his or her potential. The importance of paramount is using the techniques and activities with all students without isolating those students whose creative thinking abilities are low.

Kiely (1993) mentioned that developing creativity in students entails paying considerable attention to curricula, teaching methods, additional programmes and contents. Epstein (2008), Talgo, Recai and Sibel (2009) and Qandil (1990) mentioned that research has long attempted to investigate the characteristics of the creative individual, so that creative individuals can be identified easily. Approaches and views varied and so did the results. This controversy is, to the researcher's knowledge, still unsettled. The 1960s witnessed a concern with research exploring the phenomenon of individual differences through what is known as cognitive styles (Al-Barak, 2001). According to the reflection of other psychological variables on creativity, Al-Hamouly (1996) asserted that these researches rested upon the postulate that differences among individuals in cognitive styles can reflect individual differences in many psychological and social aspects. Sen and Khanam (1998) mentioned that the most powerful resource on earth today and the most tremendous source of energy is that within individual people.

Through the previous theoretical background, we can realize that the sociological, psychological, and educational environments among adults can play an important role in order to support and enhance the creative abilities in the society whenever and wherever available as the correct base of our educational plans and strategies.

After giving a general introduction to creativity with its definitions and background, the theories of creativity will be discussed in the following section.

2.2.1. Theories of Creativity

It is of paramount importance to study creativity in the light of the different psychological theories. This study can help with the explanation of the ambiguous and overlapping aspects of creativity. Scientific research cannot be fruitful unless it springs from a theoretical framework, the key for knowing the dimensions of the target phenomenon. Thus, psychological theories and schools have tackled creativity according to the theoretical, methodological and experimental interests and trends. De-Bono (1998) emphasized that creativity is the outcome of two main dimensions; inherited creative abilities or skills that can be developed with various programmes and techniques.

In the following part, the most important perspectives of some psychological theories of creativity will be presented.

2.2.1.1 Creativity in Associative Theory

Associative theory is considered one of the theories that studied the creativity from individual differences and its effect on the creative process. Taha (1993) mentioned that association is the functional relationship that relates psychological phenomena, which is formed through personal experience.

The pioneers of this school attempted to attribute all mental processes to the association process alone. They even attributed inferential creative processes to the association process, which differs in strength according to the frequency, strength and clarity of the personal experience that helped its formation. This way, association was extended to cover all types of compounds.

Roshka (1989, p. 49) maintained that ‘one of the most reputed supporters of the associative theory in the twentieth century is Maltzman and Mednick who see creativity as organizing the associated elements in new structures that match the special requirements or represent a given utility’. The new

elements included combinations which are far from each other. Al-Hefni (2002) asserted that the pioneers of associative theory saw that mental processes are based on sensory stimulation and that mental movement resembles sensory movement and is stimulated in the form of ideas that leave neurotic muscular vibrations and accompanying mental images. They attributed all mental processes to associations. Abdel-Ghafar (1976) emphasized that Mednick presented some factors that underlie the individual differences in the ability to perform the creative processes:

i. Associative elements that are necessary for the new combinations which are needed for creative production;

ii. Organizing the associations that affect the likelihood and the speed with which the individual reaches the creative solution; and

iii. The number of associations. With more associations, it will be more likely that the individual achieves creative production.

Kamel (1994) defined some points of this theory when he mentioned that concurring with Ebinghouse. Thorndike confirms the importance of frequency in his law of exercise, which states that association strengthens through use and practice and weakens by negligence. He also maintained that Thorndike's theory underwent three main stages:

i. Presenting the association hypothesis and the interpretation of learning on the basis of the effect and the practice laws;

ii. Refuting the practice law and modifying the effect law; and

iii. Presenting the dispersion and prevalence hypothesis.

Despite the new contributions that the associative theories made to modern psychology in general and creativity in particular, they have been criticized for many considerations. The stimulus-response

association law developed by Gathrie was refuted by many researchers. Besides, several aspects in Mednick's theory and the tests he developed were criticized.

2.2.1.2. Creativity in the Factorial Theory

Morrison (1990) asserted that many statistical methods are used to study the relation between independent and dependent variables. Factor analysis is different; it is used to study the patterns of relationship among many dependent variables, with the goal of discovering something about the nature of the independent variables that affect them, even though those independent variables were not measured directly. Thus the answers obtained by factor analysis are necessarily more hypothetical and tentative than is true when independent variables are observed directly. The inferred independent variables are called *factors*. A typical factor analysis suggests answers to four major questions:

i. How many different factors are required to explain the pattern of relationships among these variables?
ii. What is the nature of those factors?
iii. How well do the hypothesized factors explain the observed data?
iv. How much purely random or unique variance does each observed variable include?

DeCoster (1998) mentioned that factor analysis is a collection of methods used to examine how underlying constructs influence the responses on a number of measured variables. There are basically two types of factor analysis:

i. Exploratory factor analysis (EFA) attempts to discover the nature of the constructs influencing a set of responses.
ii. Confirmatory factor analysis (CFA) tests whether a specified set of constructs is influencing responses in a predicted way.

*Al-Sayed (1996) emphasized that factorial theory focuses on factor analysis which is a statistical method in which the data obtained from the administration of psychological, so educational tests are analysed in order to detect the factors affecting the phenomenon under investigation. In other words, the aim of factor analysis is interpreting and translating the components of the phenomenon and the factors affecting it into a simple statistical numerical language. As for the attempts of factorial theories to interpret creativity, several scientific efforts, like those by Guilford and Spearman, were exerted. These attempts will be discussed in the following sections.

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*Al-Sayed, Professor of Psychology at Ain-Shams University in Cairo from 1951 to 1966, then visiting professor at many Arabian universities in Kuwait, Bahrain, and UAE etc., then expert in many international organizations such as Unesco, then director of the Centre of Educational Studies at Cairo University from 1972 to 1977.

Spearman's Interpretation

When we discussed factor analysis, at least four or five factors underlying mathematical ability were found frequently. Anumerical factor was found in early factor analytic studies of mathematical ability (Spearman, 1927).For Spearman, the positive intercorrelations between general factors provided evidence of a common underlying factor that tied them all together; he called this factor (g) for general intelligence (Spearman, 1904). An examination of traditional theories of intelligence reveals that they tend towards a perspective centred on abilities, emphasizing the presence of general neural efficiency (Spearman, 1923).

**Abo-Hatab (1996) maintained that Spearman claimed that all the techniques of mental functioning (Spearman did not identify them clearly) share one function, which was the general factor that he called intelligence. In addition, every technique had its own specific factor. Spearman's research and the researches conducted by his students confirmed the existence of a number of maximum performance tests that correlate in a way that justifies attributing their correlation coefficients to the general factor, intelligence. ***Abdel-Gafar (1976) investigated these aspects when he found that Spearman, fifty years previously, had presented an interpretation for creativity, which has three bases to explain the individual's mental activity. These bases are:

i. Recognizing the things or the experiences the individual encounters;

ii. Realizing the different relationships among the things in one's field of consciousness; and

iii. Realizing the associations. If the individual realized something and its relation, the brain can reach another realization that has the same relation.

Thus, the three bases that Spearman proposed to explain creativity, are mainly based on the individual's realization of himself first and the surroundings second. So the main order is physiological and psychological.

** **Abo-Hatab**. Professor of psychology at Ain-Shams University in Cairo from 1972 to 1995, then head of the Education Psychology section at the same university from 1990 to 1994. He was head of the Egyptian Society of Psychological Studies from 1984 to 2000.

*** **A.Abdel-Gafar**. Professor of clinical psychology at Ain-Shams University in Cairo from 1963 to 1966, dean of the Education faculty of Ain-Shams University from 1977 to 1984, then Minister of Education in Egypt from 1984 to 1985, and then head of Ain-Shams University from 1989 to 1992.

Atia (2006) studied these points when he wrote that Spearman added other laws to explain creativity, which he called the quantitative laws. These laws are:

i. The span law;

ii. The retaintivity law;

iii. The fatigue law; and

iv. The primordial potencies law.

Spearman's model is better than the other models which have proposed to interpret creativity since it covers mental factors overlooked in the other models. Spearman's model was unique in his time because it consists of many positive dimensions that will support our understanding and views of creativity and intelligence. It also contains main fixed dimensions of the mental process that relate to creative performance. The model is, therefore valuable even though it is criticized for focusing only on one general aim that affects the creativity process, which is intelligence, and overlooking other specific factors, which supports the presence of a kind of disturbance in the model.

2.2.1.3. Creativity in the Two-Factor Theory

The developer of this theory was McMullan (1977, p. 281), who asserted that 'many researchers still have a clear vision of how and when they can enhance creativity'. He added that 'enhancing learners' creativity can not be based only on a clear concept of what creativity is'. This theory focuses on two main factors, so ideas and products can be considered creative:

i. The idea or its actual production should be a new creation.

ii. The idea should be feasible and useful.

One can derive the rules that should underlie a sound definition of creativity. The ideas characterized as creativity will be unexpected and may arouse astonishment in listeners. Making available an instrument of the actual feasibility of the idea stirs other problems. Some specialists

think that the two main factors of this theory are the setting and testing of hypotheses. De-Bono (1995) comprehensively analysed creative performance and concluded that it emerges through different situations and facets, which should emphasize not only finding solutions but also the importance of finding innovative original solutions as well.

The developer of the two-factor theory did not identify the degree to which the idea or the product itself should be original and creative. Should the idea or the product be supposed to be new for the individual himself, or for his society? This point is still controversial in many studies on creativity. For this reason, Al-Khalifey (1989) mentioned that the theory of planned behaviour is an extension of the theory of reasoned action made necessary by the original model's limitation in dealing with behaviours over which people have incomplete volitional control. Other researchers, like Khiar-Allah (1981), think of originality as one's ability to produce an original response, i.e., a response which is a low frequency in the community where the individual lives. McMullan (1977) follows a logical manner in eliciting the factors of his theory. He identified two stages for creative performance. They can be discriminated in Table 2, below.

Table 2.
Stages of Creative Performance

Stage A	Stage B
- visualization - creative thinking - hypothesis setting - the realization of the right hemisphere - dissipative production and transformation abilities - the main creative process - channels for the outlet of ideas	- evaluation - mental logic - hypothesis testing - the realization of the left hemisphere - convergent production - the dual creative process - controlling the outlet of ideas

These stages of creative activities can be explained as shown in Figure 2, below.

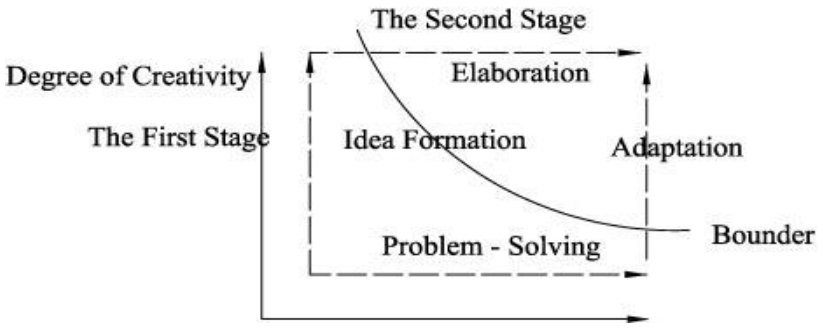

Figure 2.
Creative Processes

In Figure 2, the term 'formulation' refers to the first stage (A) of the creative process and the term 'elaboration' refers to the second stage (B). Thus, formulation is the stage that leads to creativity, whereas elaboration is the stage that leads to the actual application. The importance of this theory is shedding light on some theoretical and practical facets of creative performance through giving a general idea about the originality and the feasibility of creative ideas and products. Yet, this theory presented a new idea which is relating to the feasibility of creative ideas. Therefore, we can note results that: 1-the creative idea is not feasible to be considered uncreative which based on the assumption of this theory; 2- It can also be considered a creative idea in its theoretical and mental status. In fact, the two results are a controversial point on which researchers did not converge.

2.2.1.4. Creativity in the Three-Dimension Theory

The developer of this theory is Koastler (1978). His theory seeks to understand and analyse social relations and values that should be taken as the open-ended development and the continuity of the human life. Ideas that encompass the social relation will be seen as functional ideas in the aesthetic or spiritual sense unless they are observed in the material context.

The conveyance and reception of ideas take place through various social media and channels within varied and rich social interactions. He also asserted that his theory added the social relation to the explanation of creativity that is:

i. Creative ideas are those that are novel with a future vision;

ii. Creative ideas are those that are feasible in terms of expression or formulation in an external context, i.e., making mathematical equations; and

iii. Creative ideas are those that achieve the social relation.

This way, creativity becomes measurable and the more the performance level is measurable, the more likely it is to identify and measure the social relation. Thus, ideas need to be described as creative for the individual him- or herself. They also need to be feasible and effective in the individual's life. Such ideas can be said to be creative. Creative ideas can be described as in the following Figure 3.

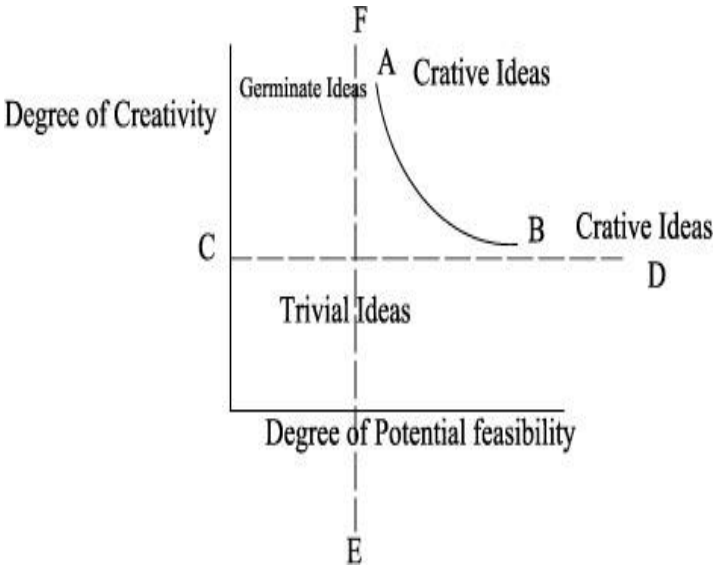

Figure 3.
Description of Creative Ideas

From Figure 3, we can classify creative ideas into germinate and creative ideas. Any ideas other than these two types are trivial. The contribution of this theory is the emphasis it places on the social interactions among the different categories and sectors of the society in order to generate various ideas and reach the peak of creativity. The generated ideas are communicated through various channels and media and they are evaluated and developed in order to attain a high level of creative

performance. The social values and relations are taken as a base for the continuity of the human life on one part and for the generation, continuity and development of creative ideas on the other. This theory is to a large extent similar to the Humanitarian Theory which appeared in the 1960s, which assumed that all individuals have creative abilities and that the emergence of these abilities depends on the nature of the social atmosphere. Irosevski (1980) was one of the representatives of the humanitarian psychology school which maintained that sociology is included in human nature or the anthropology of humans' social characteristics.

2.2.1.5. Creativity in Psychoanalytic Theory

Psychoanalysis is a method of psychological therapy which is based on detecting the subject's ideas, memories and dreams, the ideas and memories are personal in the sense that they belong to the person under psychoanalysis (Hamed, 1984). The person associates his ideas and memories and the psychoanalyst examines them to treat him. The method of psychoanalysis is free association (Bert, 2002). Through it, the person expresses his ideas and feelings freely without any reservation regardless of whether or not what he says is meaningful, logical, socially acceptable, or consistent. Consequently, the person speaks spontaneously without any pretense. According to Abdel-Ghafar (1976) the proponents of this theory, including its developer Freud, and Strachey (1989) emphasized the Id as the pure psychological truth in a human's personality, and they claim that Id with its sexual drives and aggressive instincts is what urges the individual to perform the different activities. However, the Id cannot achieve real gratification because it is far from reality. Thus, a part of it had to be distinctive and develop what Freud called the Ego, the system that saves the human's personality. The conflict between the Id and the Ego in their contact with reality is what explains humans' various activities (Freud& Brill, 1914). In order to defend itself, the Ego resorts to unconscious defence mechanisms, so that these mechanisms help to settle the conflict (Freud& Katz, 1947). It is considered a defence mechanism to counterpart the libido that the society rejects it in case it is released. Al-Hefni (2002) mentioned that the libido is the sensual or life energy which

makes the human being seek and conserve life, and reproduce. This energy is distributed among all the organs of the body. Freud and Brill (1914) emphasized that the psychoanalysis school presents a cautious definition which depends on the degree to which the libido is consistent. They divided the personality into three systems that together compose the psychological system. These systems work in cooperation and harmony. Moreover, they are harmonious. These systems are the Id, the Ego and the Super Ego (Freud, 1920).

Abdel-Ghafar (1976) asserted that creativity according the viewpoint of the developer of psychoanalysis is a defence mechanism called sublimation. The individual uses this unconscious defence mechanism in order to express his or her sexual and aggressive energies in a way that is acceptable to society. Freud (1962) mentioned that psychoanalysis should be confined to the study of suppressed instinctive drives, emotions and fantasies. Other problems, like the child's adaptation with the outside world and moral concepts like health and sickness should not, at any rate, be attended to by psychoanalysis (Freud, 1946).

There are many vague, immature and unexplained points in the explanation of creativity offered by the proponents of the psychoanalysis school. As creativity in Freud's point of view results from the conflict between Id and the Ego and the social requirements to combat the libido, we deduce that all creative individuals should undergo internal conflicts, so that their mental and psychomotor competencies are revealed in the form of creative products. Thus, should all creative people resort in order to sublimation to express their sexual desires and energies in a way that is acceptable to society?

Taking Freud's explanation for granted, societies could use various techniques and strategies to stimulate and enhance sexual and aggressive conflicts in their children, so they become creative. Meanwhile, Freud and his colleagues forgot the role of the psychological processes, abilities and motives, and emotions in the shaping of creative ideas and products. Altogether there are many shortcomings in the explanation of creativity from the psychoanalysis perspective. I have mentioned

the psychoanalytic theory in this part because Freud tackled and analysed creativity from new and different aspects in comparison with other schools and theories. Moreover, many researchers have benefited from the compound role of the Ego, which led to attention being paid to all the aspects of the personality. Another advantage is the examination of several psychological concepts related to creativity and its processes. Schools today face many kinds of challenges and it is manifested by exploiting kinds of creative scholastic activities, but in our education system in Kuwait and in other countries, are there strategies for such these scholastic activities?

More specificaly, there are some positive aspects of the Freudian or psychoanalytic perspective:

i. It is a complete theory of personality and explains behaviour dimensions of creativity;
ii. Emphasizes the role of the unconscious mind and early childhood experiences;
iii. Emphasizes the dynamic nature of creative behaviour;
iv. Emphasizes defence mechanisms of the Ego and stimulated further theoretical/research work in the personality of the creative individual;
v. Resulted in a serious interest in the psychological treatment of mental disorders; and
vi. Emphasizes the effect of the surrounding environment in creating confliction aspects of personality, which is asserted to be the reason for creativity. Now nobody can neglect the effect of the surrounding environment on our personalities from different sides not only among our creative abilities and trends.

Finally, there is no complete theory that is without any negative aspects. The main point here is how we can focus and gain more benefits from various positive aspects of previous theories for the improvement of the educational system while avoiding the negative points of these theories.

2.3. Theoretical Perspective of Critical Thinking

In our lives we face ambiguous situations and problems. What are the social and educational benefits for my family if my sons or daughters are clever but they cannot find suitable solutions for their normal life problems. As we move into the future, the issues will become more and more complex, which is making increased demands on our thinking skills. The most important challenge facing

educators is an intellectual one – developing the minds of our students in order to promote skilled reasoning and intellectual self-discipline. Acquiring critical thinking skills will enable students to make critical distinctions between the real and unreal, the true and the false, the deep and the superficial. It also enables students take the high ground, to systematically foster fair-mindedness, and to develop ethical reasoning (Linda& Richard, 2006).

Future citizens will need tobe informed consumers of technology, science, sociology, and ethics. The world has become vastly more complicated, necessitating such skills as reasonableness and logical thinking. By engaging students at a crucial time in their developmental process, we can lay the foundation for good critical thinkers (Gunn, Grigg, & Pomahac, 2008). Proficient critical thinking can be learned and it is not dependent on high intellectual ability (Bruning, Schawk, & Ronning, 1995). In fact, it involves mentally considering the relevance of available information and the reliability of its sources, using that evidence to make a reasoned judgement, and then applying that to a physical action. Such thinking has been associated with academic qualities and skills such as decision-making, creativity, reasoning, problem-solving, debating, mindfulness, and reflective judgement (Woolfolk, Winne, & Perry, 2000).

2.3.1. What is Critical Thinking?

While there is no absolute agreement as to what constitutes critical thinking, several definitions attend to the same subset of skills which are required to enhance the critical thinking instruction in the classroom. They include clarity of thought, intellectual integrity, problem identification and solution, respect for evidence, internal coherence, intellectual standards, meta cognition, questioning, deductive and inductive reasoning, and argument mapping (Facione, 2007; Fisher & Spiker, 2000; Kennedy, Fisher, & Ennis, 1991). Lisa and Mark (2008) emphasized that critical thinking is not a new concept. ‘Throughout nearly 300 years of policymaking in the United States, educators have promoted eight broad goals of schooling: basic academic skills, critical thinking and problem solving, social skills and work ethic, citizenship, physical health, emotional health, the arts and literature, and preparation for skilled employment’ (Rothstein, Wilder, & Jacobsen, 2007, p. 8).

Critical thinking is an interactive, reflective, and reasoning process of makinga judgment about what to believe or do (Facione & Facione, 1996). A key word in this definition is interactive. Critical thinking is a process that develops over time, and only if students interact with the environment in which they will be expected to function after graduation

(Kathleen, 2009).Paul and Elder (2006, p. 4) mentioned that 'critical thinking is the art of analyzing and evaluating thinking with a view to improve it'. Specifically, we can get various positive cognitive aspects from critical thinking. These aspects are as follows:

i. 'Raises vital questions and problems, formulating them clearly and precisely;

ii. 'Gathers and assesses relevant information, using abstract ideas to interpret it effectively;

iii. 'Comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;

iv. 'Thinks open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and

v. 'Communicates effectively with others in figuring out solutions to complex problems' (Paul& Elder, 2006, p. 4).

Generally, we should evaluate and develop our educational structure and system to rebuild and renew school environments for our children and adults in order to support their critical abilities and skills. There are many educational areas that must be under continuous evaluation and reform, such as:

i. 'The structure of school (subject);

ii. The schedule of classes;

iii. The grouping of pupils according to age;

iv. The class hours;

v. The grading system; and

vi. The curriculum materials' (Oelkers, 2002, p.3).

Generally the definitions of critical thinking proposed by researchers are diverse but they may be classified in certain types, as follows:

First: Reduction

These reduce critical thinking to a determined process, or determined processes which are important for the field of determining the critical thinking to be different from the other thinking types. Torrance mentioned (as cited in Lawrence& Barbara,1995, p.10), critical thinking is 'the process of generating ideas, assumption of testing and transferring the deducted result'.

Second: Characteristics of Critical Thinking

These definitions consider the characteristics of the critical thinking which distinguish it and show its elements and the appearances it reveals. Such a definition is what Lasker mentioned; that it is considered as that style of thinking which distinguishes among the matters and search for them, and it accepts contradictions which support progress, and it is interested in determining regulations and general principles, and not insisting only on parts, which may lead to discover the included elements while avoiding the previous regulations or fanaticism for a certain opinion (Lasker, 1980).

Third: Abilities and Processes

These definitions take into consideration the abilities as well as the processes involved in determining critical thinking. Examples of such definitions are where Watson and Glaser emphasized (as cited in Alla-Aldein, 1983, p. 221) that critical thinking is 'a compound of directions, knowledge and skills, such components co-operate and coherent together in the direction of fact which includes the ability in order to know the intervals of the problem, accept correct evidences and proved according to the rules of logic and knowledge'. Acknowledging the role of experiences which use the knowledge method of the student, Tegano (1991, p.25) considers that 'the thinking skill may increase the performance of the person for knowing the concepts, as well as the effective execution of experimental procedures may be the result of such efforts and it may be the natural result of them'.

2.3.2. Characteristics of Critical Thinking

Those with high critical thinking abilities may be distinguished from other persons by certain characteristics, and also their abilities to face the contradictions, ambiguities and problems of usual life. The most important of such characteristics are:

i. Positive activity interacting with the different elements of the environment, where they consider themselves active towards the situations which relate to their lives. They are innovators and they refuse the principle of probabilities for choosing style of their life, so such persons consider that the future is open before them, and they are confident (Farouk, 1993, p. 40).

ii. The environmental atmosphere has a great effect in the differentiation and diversity of critical thinking, so the reflections of effects resulted from critical thinking differ from one person to another, according to their personal differences on the one hand and the nature of the external

conditions around the person on the other (Ali, 2005). Brookfield (1993) asserted that developing critical thinking may result in some changes in the person's behaviour. In fact, his or her decisions and way of dealing with problems and this may not affect directly on some persons.

iii. Critical thinking is distinguished in that it evokes the emotions as well the mentality, so it is considered as a type of knowledge activity separate from the emotions. 'The emotional dimension is considered from the central main elements for thinking process, as while we are thinking by ourselves, then we would be more conscious and we would feel the importance of emotions' (Farouk, 1993, p. 41).

iv. Both negative and positive events shall be considered as material for evoking critical thinking. So there is a distorted adoption that the critical thinking will find suitable situation when the person faces a frustrated shock, or when he or she experiences a bad accident, 'as the person shall revise his behaviors, and whatever he is adopting of presuppositions through a comprehensive revision, but the critical thinking is evoked also with the happy events and the personal success achievement in the same proportion' (Ebrahim, 1996, p. 55).

Feeley (1976, p.7) determined a list of the mental processes which constitute critical thinking:

i. Distinguishing among approvable facts and values;
ii. Decision concerning the credibility of the source;
iii. Decision concerning the fixed facts of the information;
iv. Distinguishing among suitable and non-suitable information and claims;
v. Discovering distinguishing;
vi. Determining the non-clear assumptions;
vii. Determining the ambiguous claim or saying;
viii. Distinguishing among contradictions through deducing;
ix. Distinguishing between the guaranteed and non-guaranteed claims; and
x. The decision concerning the power of discussion.

Sometimes, one uses some of these processes in one situation, and sometimes only one process, depending on the nature of the situation from one side, and the nature of critical thinking of the

person on the other side through his or her ability to attach such processes with the reality. Ennis (1985, p. 20) introduced a summary for the basic components of the critical thinking:

First: Basic elementary clarification which consists of these components: Focusing, analysing and asking questions.

Second: Judging and observing.

Third: Inferences, which consists of these components: Deducing and inducing.

Fourth: Advanced clarification which consists of these components: Defining and identifying assumptions.

Fifth: Strategy and tactics which consist of these components: Taking decisions and interacting with others.

Each unit of these components is divided into smaller parts in the strategy determined by Ennis for introducing a detailed framework for developing the skills of the creative performance.

2.3.3. The Techniques and Stages of Critical Thinking

According to Ahmad (1995), the most important activities of the teachers in the primary school are motivating pupils to evoke and develop their critical thinking, such as: analysing and assessment skills, skill of recognition the fact from opinion, understanding the structure of the story, school competitions and classification with objectives. The teacher is able to help students develop their abilities of thinking, and the students shall not learn thinking through steps of thinking and its types, or through what has been written about the importance of thinking in the life of person, 'but the main method for learning thinking is to learn the skills of thinking, i.e. that the student shall be in a situation requiring the actual and practical thinking' (Morad, 1991, p. 49). Ruggiero (1995, p. 6) asserted that the basics of critical thinking are 'the process of getting answers in case of such matter which is considered as an endeavor as these answers not ready'. Ennis (1987, p. 12) analysed such basics 'as they include abilities for solving the problem and taking the decision, and normal meta-cognition, the logic thinking and the intelligence'. Feldhusen (1995, p.340) suggested that 'persons could be taught their realization activity in order to search purposely for alternatives to know new ideas or solutions, when they reach the stage of realization and testing the validity of basic solutions or new concepts which have been developed'. Fouad (1996, pp. 272–273) considers that 'there are many factors which related to critical thinking which has been reached through factorial researches

performed whether in Gilford's laboratory or may be performed by other researchers but they included his sample. The most important of such factors are shapes unites assessment, symbols unites assessment, meanings units assessment, shapes categories assessment and introducing symbols categories'.

Halpern (2007) provided specific guidelines for pedagogical practice and emphasized these in addition to the explicit teaching of skills. Critical thinking instruction needs to develop the dispositions for effortful thinking and learning, to increase the probability of transcontextual transfer through direct learning activities, and to make metacognitive monitoring explicit and overt. Most indirect methods of teaching strive to provide students with the opportunity to demonstrate responsibility and to engage in cooperative dialogue. For instance; in the field of games, in a setting such as basketball, students could be prescribed the task of developing, teaching, leading, and officiating at an effective lead-up game (Ken, 2009). The originators of an indirect instructional model known as teaching personal and social responsibility, Hellison and Templin (1991, p.102), suggested the following seven critical thinking steps leads students as they formulate a new game:

(1) 'Introduce the idea that any game can be played in several ways; (2) show how to analyse the components of a game; (3) allow students to generate alternatives to a specific game, preferably in small groups; (4) try out some of the alternatives; (5) encourage students to continue to generate and try out alternative ideas; (6) consolidate students' ideas, and show students what they have accomplished; and, (7) use this model with different games and encourage the creation of entirely new games'. Ahmad (1995, p. 40–41) emphasized that 'some developed countries try to use the best scientific, educational and psychological theories for developing the abilities of critical thinking, and this should be in their curriculums through following multi

(2) styles like:

i. The acknowledgment that there is a certain problem or matter until it is clear;
ii. Determining the marks of the basic matter clearly;
iii. Checking the possible assumptions;
iv. Determining the importance range of the points related to the matter;
v. Suggesting some possible solutions;
vi. Determining the sources for some information about a certain topic; and
vii. Searching for information in a wide range of sources and books.'

There is a group of techniques for developing the different abilities of critical thinking, and their nature differs with the diversity of the psychological schools and the diversity of situations surrounding students. The most important of such techniques are:

1. **Critical Question**: Brookfield (1993) indicated that one should use the following in order to facilitate gaining abilities: making the questions determined and related to events, situations, persons and special acts, and do not ask general questions such as: 'What are the principles that should be taken into consideration at the time of distributing the wealth in the society?' Also avoiding the big terminologies which their natures are specialized inspections.

2. Critical Situation: The nature of this technique is to determine all the conditions and effects related to the situations that may happen to the persons during a specified period, through writing down such conditions through copying for getting the most important negative aspects, or the positive aspects which may affect the nature of the situation itself, and also the nature of the conditions related to taking the decisions. The most important axes which relate to and affect such a critical situation are the 'place and time of the situation, classification of persons who are attendant at the time of the situation according to the nature of their sex and their work and the nature of physical conditions which surrounding the person himself and its degrees' (Ali, 2000, p. 33).

3. Analysing the Criteria: The criteria are the basis on which we do our provisions and we come back to them when we introduce efficiency, and they are determined criteria which we determine through our success or failure. This technique requires the person to be clear about the criteria they use when they decide that one activity is successful or good. 'These criteria as think about your professional or educational life, choose the most educational experiments that you have participated in successfully whether as a teacher or a student, and explain why they were successful. And what were the advantages of this experiment which were not in other experiments?'(Ebrahim, 1996, p. 61).

4. The Moral Problems:'It is a technique where the persons are required to imagine themselves in a situation where they are forced to take a certain decision out of some uncomfortable options which cause disorder, and after taking the decision, they shall be required to explain the reasons which have pushed them to take such decision' (Ebrahim, 1996, p.60).The objective of this technique is that the persons should be aware of their choices and decisions according to what is available as objective information about the elements of the situation away from unsupported excitement.

There is no doubt that the critical thinking process is like any other mental process which proceeds through many stages to reach finally the integrated correct solution according to the nature of the situation. The most important steps of critical thinking are as follows:

Trigger Event: In this stage, emerging the unexpected matter and the feeling and inter sense shall be after satisfying, so there will be personal ambiguous to dominate over him (Brookfield, 1987).

Assessment: The assessment process shall come after the alerting event, 'which is assessment of the current situation, and the person shall hesitate between denying or decreasing what the alerting event has done, or the continuous thinking of the correct nature of the situation which may disturb the person' (Farouk, 1993, p.40).

Exploration: Here, we have to search for new styles for performing something, providing answers and searching for new concepts for regulating the opinions of the person towards the world, 'and the person starts in decreasing situation through trying experiencing new styles, and the alternatives shall be selected in this stage, then to act for the situation with more familiar method with whatever has been done of exploration' (Farouk, 1993, p. 41).

Integration: When the person reaches and is assured of the correctness of his familiar styles with the situation, all this after the processes of assessment and evaluation, there shall be a harmony between what has the person adopted of suitable ideas, and the behavioural decisions taken which are in harmony and correspondence with the nature of the situation in order to reach the final decisions, then to change the directions of the person mentally and behaviourally against the situation itself (Brookfield, 1993).

2.3.4. Obstacles to Critical Thinking

There are many problems and obstacles to developing critical thinking, so any experience for developing critical thinking should include techniques which face such obstacles and eliminate their effects. Four obstacles often impede the integration of critical thinking in education: First, teachers are not trained in critical thinking methodology (Broadbear, 2003). Second, few instructional materials provide critical thinking resources (Scriven & Paul, 2007). Third, both teachers and students have preconceptions about the content that blocks their ability to think critically about the material (Kang & Howren, 2004). Fourth, time constraints are barriers to integrate critical thinking skills in the classroom (Lisa & Mark, 2008). There are other types of obstacles to critical thinking, as follows:

Docility to Frequently-Expressed Opinions: 'Such opinions are used among the people and the person accepts them and deals with them without coming back to their real resources, or ensuring of their correctness as the acoustic news, common wisdoms and proverbs' (Ebrahim,1998, p.118).

Prejudice or the Partial View: De-Bono (1995) described as the partial view where the person may neglect the elements of other situations for achieving his interest, and they may be not intended as they may be based on insufficient information, and the first case is more difficult to change than the second case**.**

Ignorance of School Administrations: One of the negative aspects of school administrations is ignorance and lack of familiarity with the importance of critical thinking in the different aspects of the student in the past and the future, and this shall be in the different sectors of the society. Narrow-minded thinking and the unawareness of such educational aspects shall cause the disability of the person in order to face his different situations in the society, because of shortness of his realization to the elements of the situation in full and integrally.

Abiding by the Singleness Principle: A person may think in a correct way and believe that others are wrong, and this affects the beliefs of the person and his emotions, which are affected with such principle as that there is no belief that is right except the belief of the person him- or herself. Walsh (1988, p.283) showed that 'all the scholar activities are coming from the singleness and they refuse pluralism, as the questions have only one right answer (outside the field of the physical facts) and the try for proofing that the other is wrong so I'm right without searching what is this right'.

Initial Judgment: De-Bono (1985, 1988) asserted that the person here does not use thinking to clear and inspect situations for reaching his judge, but he is using the thinking for supporting one judgement which was formed on the basis of prejudice, emotion, previous thinking or the social conglomerate.

Most of the school activities and projects in all grades do not include the philosophy, objectives and intellectual strategies related to general thinking skills and especially critical thinking. The ambiguous objectives of the school curriculum and activities, and also the educational policies which do not include high mental policies lead to great negative effects on the development of the student's thinking both inside and outside the educational establishments.

From the previous educational dimensions of critical thinking, we can consider the importance of critical thinking not only in the classroom environment, but also for the whole of human life,

because it looks like the motor of defence against any ambiguous and complex situation by using various cognitive and behaviors, skills, traits, experiences and abilities.

2.4. Theoretical Perspective of Emotional Intelligence

Rapid change is the reality of the modern age. One of the most important factors of rapid change is the use of social and emotional skills, which assume an ever greater importance in human relations. Problems arising from emotions and social interaction can be solved through the presence of individuals who can control their own feelings and develop empathy. Such people are also innovative and have high levels of awareness (Bilal, Tamer, Mahmut, & Sebahattin, 2010).

Over the past hundred years, most theories of intelligence (Binet& Simon, 1916; Spearman, 1923; Thurstone, 1938; Wechsler, 1958) have posited the preeminence of one general ability, at the apex of a hierarchical model (Brody, 1992). This general factor represents many psychometric researchers, underlying what all different kinds of intelligence tests have in common (Keith, 1994).Emotional intelligence is the innate potential to feel, use, communicate, recognize, remember, learn from, manage, understand and explain emotions. The word 'describe' also includes describing emotions to oneself, in order to better understand them etc., and not merely communication or explanation of emotions to others. The description of an emotion really comprises the use of metaphors and analogies, including comparison with other, similar emotions, and all manner of other analogous things, in order to better incorporate an emotion into one's verbal and intellectual understanding, so that it can be really focused on as a matter of concentration (Goleman, 2003).

The description of feelings using metaphors form a part of the basis of human language. It helps refine our understanding of feelings by comparing feelings to concrete things and already extant mental concepts. EQ is an abbreviation for 'emotional quotient', the measure of emotional intelligence, and it means being smart with feelings. Some people only know how to get along with others; some people are more self-confident, and others are great at inspiring others. All these come from a set of skills called emotional intelligence, or EQ. Some other EQ skills are identifying and changing emotions, motivating one self, and empathizing with another person. Emotional intelligence is a set of measurable and learnable skills essential for success in school, work, and life (Kathy, 2001).

Successively more specific mental abilities constitute the lower strata or levels of generality, depending on the particular theory. Fluid and crystallized intelligence is one example (Horn, 1976) and verbal comprehension and nonverbal-perceptual-spatial abilities are another (Wechsler, 1991). These traditional theories of intelligence, although quite varied, share a small number of consensual attributes. They all agree that intelligence is goal-directed mental activity that is marked by efficient problem solving, critical thinking, and effective abstract reasoning (Sternberg, 1986).

Traditionally, the study of intelligence or human abilities has largely focused on cognitive abilities and their adaptive uses (Piaget, 1950). In recent years, more encompassing approaches to the study of intelligence have gradually gained widespread acceptance through the works of many theorists, including, among others, Gardner (1983, 1999a) and Sternberg (1988, 1999). Along this line, it is believed that the notion of intelligence should be expanded to include not only cognitive abilities but also the experience and expression of emotions (Barrett& Gross, 2001; Ciarrochi, Chan**,** & Caputi, 2000; Mayer, Caruso, & Salovey, 1999). The intrigue of why some people become successful while others fail despite natural talents, gifts, or intelligence has provoked inquiry into qualities that determine success. While some people possess varying degrees of ability, often the most talented are not always the most successful, happy, or wealthy, which goes against our rational way of thinking. Although it is premature to conclude that emotional intelligence plays a key role in determining life success, it is proposed that there may be a significant relationship.

Gardner (1999b) asserted that emotional intelligence includes self-discipline. The characteristics of emotional intelligence include those qualities that are predictors for successful functioning in society. These characteristics are described as being self-assured and interested; knowing what kind of behaviour is expected and how to control the impulse to misbehave, and being able to wait and delay gratification, to follow directions, turn to teachers for help, and to express needs while getting along with peers (Kathy, 2001).

Emotional intelligence is very important in all educational, sociological and economic organizations and environments, because organizations today continually need to undergo rapid change in order to maintain their competitive edge. That rapid change requires an organization that has employees and leaders who are adaptive, work effectively, constantly improve systems and processes, are customer focused, and who share the need to make a profit (Lise, 2007). The continuous environment of turmoil and change has been termed the permanent white waters of

modern life (Vaill, 1996). A key element in driving and managing these 'white waters' in an organization is believed by many to be leadership. Great leaders move us, they ignite our passion and inspire the best in us. When we try to explain why they are so effective, we speak of strategy, vision, or powerful ideas. But the reality is more primal. Great leadership works through the emotions (Goleman, Boyatzis, & McKee, 2002). Recently, there have been a number of articles in the popular press espousing the benefits of emotional intelligence for principals of schools, organizations, leaders and individual contributors. This has contributed to a significant out pouring of popular books and seminars on the topic and consultants training individuals to become more emotionally intelligent (Yukl, 1998; Yukl & VanFleet, 1992).

Primarily, two perspectives of emotional intelligence have emerged over the past decade: one is based on a mixed perspective, which defines emotional intelligence largely through personality characteristics; the second perspective is an ability perspective, which defines emotional intelligence as a set of distinct abilities (Lise, 2007). There has been more research in the area of personality characteristics and leadership. The ability model of emotional intelligence is framed as a type of intelligence, hence it is intended to co-exist with, supplement, and clarify existing models of leadership – not replace them (Kerry, 2009). In spite of this model being too new to have extensive data in support of its predictive validity, it is believed that it will make significant contributions to our understanding of leadership (Mayer, Caruso, & Salovey, 2002). Leadership, which embraces the emotional side of directing organizations, pumps life and meaning into management structures, bringing them to full life (Barach & Eckhardt, 2007).

For example, the leaders, directors or principals in any organization if they want to avoid any kind of prejudice, can follow strategies of emotional intelligence in order to achieve their objectives, get high quality of outcomes and to improve the relationships with the employees especially if there are many nationalities and races working with them, so by training, such as workshops in the field of emotional intelligence, any school or organization can safely apply their plans without any technical or administration side effects.

Emotional intelligence is the use of emotions intrapersonally, to help oneself, and interpersonally, to help others. It involves intentionally making your emotions work for you by using them to help guide your behaviour and thinking in ways that enhance your performance (Hendrie, 1998). Salovey

(as cited in Connie, Mary, & Christine, 2006) mentioned that emotional intelligence is not the opposite of intelligence or the triumph of heart over head. Rather, it is the unique intersection of both.

Educators need to provide students with the opportunities to understand and develop the skills that they will require to succeed in the working environment (Greg& Anne, 2009), and educators 'have the responsibility to provide their students with a strong foundation in both technical and emotional training and activities' (Abraham, 2006, p 74). One possible way in which students could be provided with the opportunity to develop these types of skills would be to cultivate the development of EI within various scholastic activities and projects in and out of school. One of the main thoughts of the progressive education movement by Dewey is the importance of democracy among children and adults, and this cannot be achieve in or out of school without social interaction based on emotional intelligence with its components and keys in order to recognize abilities and skills. So 'democratic education should also be based upon a democratic theory of education that is no longer fixed upon traditional authorities, but instead is capable of responding to the open process of democratic experience' (Oelkers, 1999, p. 12).

Goleman (1996) asserted that most IQ contributes about 20 percent to the factors that determine success, leaving 80 percent to other factors. These other factors make up what is called emotional intelligence or EI. Moreover; he mentioned that emotional intelligence consists of affective abilities such as getting along with others (cooperation, resolving conflict), self-motivation, persistence, empathizing (expressing feelings, appreciating diversity), controlling impulses and regulating one's mood.

Emotional intelligence is not a new concept in psychology. One can find related ideas in work done over 60 years ago (Cary, 2002). For instance, Robert Thorndike wrote about 'social intelligence' in the late 1930s. He defined social intelligence as 'the ability to understand and manage men and women, boys and girls to act wisely in human relations' (Thorndike & Stein, 1937, p. 280). In addition, Wechsler (1958) recognized non-cognitive features of intelligence as necessary for adaptation and achievement.

In the early 1940s, Wechsler presented the idea of 'non-intellective' and 'intellective' factors. He also proposed that the 'non-intellective' factors, such as effective, personal, and social factors, were necessary for predicting a person's aptitude for accomplishment (John & Lori, 2005). Moreover; he wrote, 'It follows that we cannot expect to measure the total intelligence until our tests also include

some measures of the non-intellective factors' (Wechsler, 1943). He defined intelligence as 'the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment' (Wechsler, 1958).

Then in the early 1980s, the idea of emotional intelligence resurfaced. Howard Gardner suggested that all human beings possess a number of intelligences, each of which appears to be housed in a different part of the brain. Gardner's ideas came to be known as the Theory of Multiple Intelligences. Within his concept of multiple intelligences, he proposed the 'interpersonal' and 'intrapersonal' intelligence are as important as cognitive elements of intelligence. Interpersonal intelligence, or 'people smart', describes those who have a gift of understanding, appreciating, and getting along well with others. Intrapersonal intelligence, on the other hand, is the ability to understand yourself, knowing who and what you are, and how you fit into the greater scheme of the universe (Gardner, 2000).

In 1990, Salovey and his colleagues published a paper in which they used the term 'emotional intelligence' for the first time. They defined EI as the ability to perceive and express emotions, to understand and use them, and to manage emotions in oneself and other people (Salovey, Bedell, Detweiler, & Mayer, 1999). During the next few years they did a number of laboratories and field-based studies of this 'new' concept (Mayer, Caruso, & Salovey, 1998).

Finally, the emotional intelligence concept was popularized in 1990 by the publication of Daniel Goleman's book, *Emotional Intelligence*. Goleman's ideas of emotional intelligence include Howard Gardner's interpersonal and intrapersonal intelligences, as well as other necessary facilities (Goleman, 1990). An elegant definition of intelligence that provides a useful theoretical framework for considering the EI construct was recently proposed by Sternberg (1997). Intelligence comprises the mental abilities necessary for adaptation to, as well as shaping and selection of, any environmental contents. According to this definition, individuals act intelligently not only when they successfully adapt or react to the environment, but also when they shape and change their existing environment in order to meet their needs. Sternberg posits that intelligence has a common core of mental processes, irrespective of culture or environmental context.

2.4.1. What is the Possibility to Develop EI?

Developing emotional intelligence may take some time and effort, but the most important thing is that we have to be conscious of our actions; we have to be conscious of not only our own feelings but also the feelings of others as well.

Bar-On (2000) has found that successively older cohorts tend to score higher on their scale of EI, suggesting that EI can be learned and developed through life experience. A wide range of findings from psychotherapy (Barlow, 1985), training programmes (Marrow, Jarrett,& Rupinski, 1997), and executive education (Boyatzis, Cowan & Kolb, 1995) all provide evidence for people's ability to improve their emotional and social competence with sustained effort and a systematic programme (Kerry, 2009).The development of emotional intelligence is an important issue which primarily has a familial base and it should apart of the education process (Kansu, 2002).

The development of abilities such as communication skills and empathy, which are necessary for the solution of social conflicts and problems in one's family, school, general environment and professional life, are important in both a personal and a social sense. Therefore, studies should be conducted to investigate the positive and negative factors affecting levels of emotional intelligence in both familial and educational contexts (Bilal et al., 2010).The expansion of emotional intelligence is parallel to cognitive development. In this context, development of emotional intelligence initiates with the interaction of the individual (Patrick, Denis,& Vandamme, 2001).The supporting of emotional intelligence is important at all educational stages from kindergarten to higher education, learning cannot happen independently of the emotions of the individual, and academic intelligence can be used more effectively when emotional intelligence is developed. So emotional intelligence is regarded as the touchstone of success in all aspects of life (Shapiro, 1999).

In conclusion, that is why education policies makers should encourage and support school administrations to apply various kinds of school activities and projects, because it is the main area that we can discover, follow up and educate various creative abilities through their practising, playing, and implementation strategies during school activities and project times.

Connie, Mary, and Christine (2006) studied emotional intelligence from the classroom to the workplace among 281 students who identified themselves as accounting majors, and 178 who

identified themselves as one of the other business majors. One participant did not list a major. Moreover, the sample consisted of 219 females and 241 males, and there were 280 sophomores/juniors and 180 seniors. Besides, the positive results of this research suggest that the emotional intelligence of individuals can be enhanced and developed by a curriculum designed to increase students' abilities to manage their emotions.

More specifically, the curriculum increased their ability to use literature to gain self-awareness of their emotional lives by identifying their emotions and causes through discussion and writing in response of literature. Adult education for a long time has concerned itself with cognitive development. As research begins to demonstrate that other factors, such as emotional intelligence, are important to education, perhaps more emphasis can be placed on this factor in students' core curricula.

Various researchers (Finley, Pettinger, Rutherford, & Timmes, 2000; Gore, 2000; Kolb & Weede, 2001) have conducted studies about supporting and developing emotional intelligence through education and concluded that children who experience these special programmes have higher emotional intelligence. The emotional intelligence education programme was given to the children in the experimental group which was designed to enable children to recognize, understand, and manage their emotions in accordance with the sections measured by the Emotional Intelligence Scale. Therefore, a significant difference was expected for these sections after the experiment.

In support of these findings, Bennet and Knight (1996), Bruno, England and Chambliss (2002), and Grinspan, Hemphill and Nowicki (2003) also argued that children's abilities in recognizing, understanding and managing emotions may be supported by a specific education programme. Gore (2000) and Thorlakson (2004) concluded that education can increase the empathy levels of children. According to the observations of preschool teachers, the emotional intelligence of children increases after special education. Schulte-Vincent (as cited in Ilkay& Esra, 2007) also claimed that teachers observed a visible difference in the social abilities of children after completion of an emotional intelligence education programme.

For the principal of a school who wants to develop emotional intelligence abilities among the students, firstly it is very important to ask herself or himself the following questions:

i. Is there enough supporting material and technology in the school to develop all aspects of emotional intelligence abilities?
ii. Is there enough time to apply various student activities and projects that will support their emotional abilities?
iii. Are there enough creative teachers who will apply and follow-up their students during practising various activities and projects?
iv. Is there enough association and correlation between the school curriculum and applying student projects which focus on development of emotional intelligence?
v. Is there readiness and preparedness among students to enter various projects for developing their emotional skills and abilities?

These questions and others will help principals to design and determine a general plan and strategy, if there are any intentions to develop emotional intelligence abilities among students.

2.4.2. Components of Emotional Intelligence:

Emotional intelligence consists of a large set of abilities that have been studied for years through tests in order to measure specific abilities (Kerry, 2009). For instance, Seligman's SASQ designed a measure for learned optimism, which has been impressive its ability to identify high-performing students, salespeople, and athletes (Schulman, 1995).More recent research has shown that the more senior the leader, the more important are his or her emotional competencies (Goleman, Boyatzis& McKee 2002).A considerable body of research suggests that the key to success lies in a person's ability to perceive, identify, and manage emotion. These abilities form the basis for the emotional and social competencies that are important for success in almost any job (Kerry, 2009).

The key components of emotional intelligence have been described as self-awareness and empathy. It is believed that these qualities are not only the foundation of emotional intelligence, but also are essential for sound moral development and social responsibility. Self-awareness is the understanding of one's emotions or motives and beliefs. It is also the understanding of one's strengths and limitations. Moreover, individuals with adequate self-awareness tend to believe in the purpose of their mission and in the appropriateness of their actions (David, 2003).

At the same time, they tend to be realistic, rather than naive, about themselves and others. Empathy is the ability to understand and share others' feelings. Besides, cognitive or intellectual empathy is the ability to predict others' thoughts and feelings. Furthermore, empathy enables people to read another person's face and voice for emotional content so that they can be attuned to how that person feels throughout the course of their interaction (Leonard & Bruce, 2003).

Emotional intelligence will be considered an actual, traditional, intelligence here. From this perspective, emotional intelligence arises from a productive union of the cognitive and emotion systems. The cognitive system carries out abstract reasoning about emotions, while the emotion system enhances cognitive capacity. More specifically, individuals high in emotional intelligence have the ability to perceive, understand, and manage emotions, on the one hand, and to allow emotions to facilitate their thought, on the other hand.

Goleman (2003) mentioned that emotional intelligence consists of many components, as follows:

i. Emotional self-awareness;

ii. Managing emotions;

iii. Harnessing emotions productively;

iv. Empathy: reading emotions; and

v. Handling relationships.

Shapiro (2002) also asserted that there are many components of emotional intelligence: moral feeling, intellectual skills, problems solving, social skills, achievement skills and self-motivation, and the power of empathy. Salovey, Mayer, Goldman, Turvey, and Palfai (1995) proposed a model of emotional intelligence that includes abilities in five domains:

i. Understanding one's emotions**:** Individuals who are introspective, insightful, and truly understand their feelings are better equipped to develop goals, make plans, and follow through and achieve their goals. They are able to understand their strengths and are willing to work on their weaknesses;

ii. Managing one's emotions: Understanding one's feelings leads to better management of emotions and, consequently, to happier situations. Individuals who are able to manage their emotions are able to control their behaviour;

iii. Motivating oneself: Individuals who are able to manage their feelings in a positive direction are able to control their impulses. They are in charge of their behaviour and feel empowered to change their destiny;

iv. Recognizing emotions in others: Empathy is a quality that is crucial in maintaining a civilized social order. It negates every person for him or herself mentality, and causes people to abide by certain moral principles. Empathetic individuals are sensitive to the feelings of others and are able to put themselves in 'another's shoes'; and

v. Handling relationships: The art of influencing people requires skills in managing the emotions of others. Individuals are able to collaborate and to cooperate with others and respect their differences.

Hendrie (1998) created an emotional intelligence model, complete with an instrument to measure levels of emotional intelligence competence. The bases for his model were Salovey and Mayer's theoretical building blocks of emotional intelligence. Hendrie describes these building blocks as four sets of abilities that, hierarchically, give rise to a person's emotional intelligence. Specifically, they consist of the ability to:

i. Perceive, appraise, and express emotion accurately;

ii. Access or generate feelings on demand when they can facilitate understanding of oneself or another person;

iii. Understand emotions and the knowledge that derives from them; and

iv. Regulate emotions and promote emotional and intellectual growth.

Hendrie's model includes three competencies relating to the intrapersonal dimension and two competencies relating to the interpersonal dimension. There are other emotional intelligence models with different abilities and components, but at the end all these models focus one motions and controlling, directing and understanding them.

So to achieve these abilities and components among students in various grades, at least there must be general coordination, supporting, cooperation and interaction between family, school and society

for our educational objectives and strategies to come true, and I also assert that as these abilities need available suitable criteria and educational environment as the basic in order to succeed these abilities of emotional intelligence.

CHAPTER 3

REVIEW OF LITERATURE OF PROJECT METHOD

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Review of Literature of Project Method

This chapter consists of a review of literature on the project method that includes a summary of several research studies in order to examine the effect of the project method in terms of the target variables. Additionally, with other set of variables to realize and determine the effect and impact of the project method on various sets of educational and psychological variables, especially the variables of the present study; creative thinking, critical thinking and emotional intelligence. These studies are representative of the research literature on the project method and discuss various aspects and dimensions of the project method with it correlations with several variables. Moreover, and according to these relevant studies on the project method, there are several relationships between the project method and different types of variables. It is not only in the field of education or psychology, but also we can find these relations in different environments, organizations, institutions…etc, which focus on different types of practical implications not only among education field. These related studies, as mentioned below, are examples of several academic works which study the project method through its correlation with several types of variables and especially with the variables of the present study. Generally, the results of these related studies reflect many academic and educational facts of the importance of project method in school system, which is my focus in this research. Kilpatrick's proposed project method was intended to be a means for students to develop. through purposeful activity (i.e., activity consistent with the student's own goals and felt needs), the values needed for building the democratic character and personality with the majority of the responsibility on the students themselves (James et al., 1986, p. 3). This was in keeping with Kilpatrick's notion that the 'great end of life is not knowledge, but action' (Samuel, 1951, p.135). With Dewey and Kilpatrick's project method, many of the reformers believed that they had found the mechanism for the democratic and libertarian transformation of school and society. However, their appropriation of American models was only fragmentary. From Dewey's formula of 'education for democracy' and Kilpatrick's slogan of 'hearty purposeful activity' they concluded that all actions could be classified like projects as long as they satisfied the criteria of self-determination and self-satisfying needs. When the realities associated with imparting systematic knowledge and skills through independent project work emerged, the reformers developed a more differentiated approach. On typical, routine school days, a reduced form of project-oriented teaching was used; but on special occasions (e.g., before public holidays and vacations), an ideal form of project teaching was employed (Knoll,

1997). The study of the project method cannot be done in isolation and separately from educational, psychological and sociological variables among all educational and professional structures of a society, because if we want to support and develop various creative and personality abilities and attitudes of our students and employees, we should administer several modern developmental types of techniques and methods among these structures. The project method is considered one of these developmental types that we can use to support and develop advanced skills among our students. So, if we want to develop project method programmes in our schools, we should study, determine and identify the method and its effects and impacts on various variables. In the following part of this chapter, I will present examples and summaries of results from several related studies of the project method, as follows:

Barbara and Julie (2001) described a collaborative action research project in one primary school that arose from a mutual interest in applying the concept of emotional intelligence. It involved an exploratory qualitative study of the Promoting Alternative Thinking Strategies (PATHS) curriculum. This is an approach aimed at promoting emotional competence in children and young people. The PATHS curriculum was chosen because it is a clear conceptualization of emotion, it also emphasizes cognitive and developmental aspects. One class of nine- and ten-year olds took part in this project. Particular children were selected from within this group for closer monitoring. The outcomes suggest that PATHS was rated very positively by class teachers, pupils and other staff involved in this project. Positive emotional, social and behavioural changes at a class and individual level were attributed to the effects of PATHS. Finally, the importance of developing a positive school ethos was highlighted as promoting these effects.

Min and Yu-Ping (2002) investigated the effect of multimedia design using a project-based learning approach. Specifically, it addressed two questions: whether learning in a multimedia designer environment could increase middle school students' motivation towards learning; and whether the middle school students' use of cognitive strategy was affected by engaging in the role of being a multimedia designer. The participants were students in an elective multimedia class (N=16) from a middle school in the southwestern part of the United States. Of this sample, 80 percent were white and 20 per cent were of ethnic minorities. The five female and eleven male students were aged from 12 to 14 years. The paper described this 'learner as multimedia designer' environment in detail (the various phases, tasks, and tools). Both quantitative and qualitative data were used in the investigation. Data were collected using the Motivated Strategies of Learning Questionnaire and through student interviews. The results suggested that such an environment encourages students to

be independent learners, good problem solvers, and effective decision-makers. Engaging middle school students in being a multimedia designer can have a positive impact on their cognitive strategy use and motivation.

Yvonne (2003) conducted the project method in her school. She was the principal of the early childhood department of Eton School in Mexico City. The project described was a study of bones undertaken by five-year-old kindergarten children. The children worked on a theme about the human body. This project consist of several phases; discussion, stories, field visits to look at bones at clinics and museums…etc., drawing, brain storming, and making posters. The children started telling personal stories about their experiences with doctors and getting hurt, and they expressed a special interest in accidents and broken bones. The teacher brought in several X-rays, a pair of crutches, and some items such as knee braces and air casts that the children could use for role-playing activities. She wanted to see if the children's interest in this topic was intense enough to start an in-depth study. The results of the bone project were that the kindergarten children were able to apply basic skills to solve real-life problems. They not only touched upon the requirements for their age and grade level, they surpassed expectations of the knowledge they gained and the skills they acquired. This project made a difference at the school because the children's self-motivation, excitement, interest, willingness to work hard, and their display of creativity and problem-solving abilities amazed other teachers who had been reluctant to try project work. Families were not informed that the school teachers were working with the children in a different way, nevertheless, all of them knew that something had changed because the interest their children showed in this topic was reflected at home.

Gregory, James and Tracey (2005) studied the evaluation of an 'ecological, futures, and global' (EFG) primary education curriculum by a project approach. In this study, the EFG curriculum was compared with the traditional curriculum currently used at an elementary school in the USA. This school followed the curriculum model of the Tennessee Department of Education. Teachers using the traditional curriculum also utilize project instruction at times but in a less structured and involved manner. This study compared the scores of Terra Nova standardized achievement tests for students of the EFG curriculum with scores from the traditional method of instruction. This study also evaluated correlates of previous exposure to the EFG curriculum to current enrolment in the EFG programme. Terra Nova Scale gain scores were used to compare the results of current EFG students with those of students with past EFG experience, and scores of students in a traditional classroom who had never participated in the EFG curriculum. The Terra Nova Scale gain scores were available

for 154 participants in 2001. Student groups were designated by the grade level they were enrolled in at the time of Student Satisfaction Survey (SSS) data collection in 2002. Terra Nova data were collected twice. Terra Nova gain scores were found by comparing 2000 and 2001 scores. The SSS scores were collected only once in 2002. For that reason the number of participants in each group depended on which variable was being considered. Thirty teachers participated (EFG = 6, Traditional = 24) from kindergarten through to sixth grade. A total of 32 teachers were asked to participate, hence the return rate was approximately 94%. Teachers were asked to complete the Teacher Satisfaction Survey (TSS), a self-report questionnaire designed to measure teacher's opinions and perceptions of the curriculum and method of instruction they were using. The TSS questionnaire measured (a) grade, (b) teaching experience, (c) classroom size, (d) type of curriculum currently used, (e) length of time using current curriculum, and (f) eight questions related to feelings about various aspects of teaching experience. Students were measured using the Student Satisfaction Survey (SSS) self-report questionnaire designed to measure (a) student's attitude toward school, (b) non-traditional academic criteria, (c) amount of project work, (d) current grade level, (e) gender, (f) race, and (g) type of curriculum. The EFG curriculum is a comprehensive embedded curriculum built around learning projects. The EFG's key components are ecological, futures, and global education. The ecological component focuses on science education and includes projects involving study of the Earth and people's involvement with the environment. The project-based learning in the EFG curriculum integrates active learning and knowledge seeking with core skills designed to base all projects around an educational framework. Implementation of the project approach in the EFG curriculum involves a great deal of interaction between students and teachers. Teachers serve as facilitators of a project. Students are assigned a project, but are given choices concerning the direction of the project and their individual responsibilities. Students also choose some of the artifacts and are assigned to create portfolios for assessment. Projects are also broad in scope in order to address the needs of a wide range of abilities. The variety of activities involved in each project gives most students an opportunity to engage in learning that is successful for them. The projects within the EFG curriculum are directly connected to the community and family lives of students. Students are given an opportunity to connect their knowledge to the outside environment as well as to utilize resources available in the community. One-way ANOVA was performed on the dependent variables of student attitude, academic work and project work to determine any significant demographic effects for the independent variables of race, gender, and grade. The ANOVA for grade was significant for student attitude. Therefore, grade was included in the subsequent analyses to determine interaction effects. Other main effects were not significant. In order to test whether

students in the EFG curriculum show more positive academic satisfaction, a 3 (Curriculum Group) X 3 (Grade) ANOVA was performed on each dependent variable; student attitude, academic work and project work. The third-, fourth- and sixth-grade levels were excluded from these analyses because there were no EFG students at these grade levels at the time the SSS was administered. The main effect for curriculum group was only significant for the project work dependent variable, post-hoc analyses using Tukey HSD were conducted to look for small but significant differences. The means for first, second and fifth grades for the current EFG group showed significantly higher mean academic scores and project work scores when compared with the control group. There were no significant differences for Attitude scores. The study evaluated teachers' perceptions of their current curriculum using the Teacher Satisfaction Survey (TSS). It showed significantly higher total ratings by teachers who used the EFG curriculum compared with teachers who used the standard curriculum. One-way ANOVA was performed on the total raw score to determine any significant demographic effects for the independent variables of grade, teaching experience, classroom size, and length of time using curriculum. The independent variables of grade, classroom size, and length of time using curriculum resulted in no significant differences. The ANOVA for teaching experience was significant where F (5. 29) = 2.62, p= 0.05. The variable teaching experience was not included in subsequent analyses because there were not enough participants at each level of other variables for comparison. In order to determine whether teachers using the EFG curriculum show greater academic satisfaction, a one-way ANOVA (Curriculum) on the TSS total raw score was conducted. The main effect for curriculum was significant, F (1.29) = 9.59, p= 0.004, suggesting the scores of teachers using the EFG curriculum (M= 10.33, SD= 2.94) rated academic satisfaction higher than teachers using standard curriculum (M= 16.13, SD= 4.31). Low scores indicate the most satisfaction. Other main effects and interactions were not significant.

Lima, Carvalho, Flores and Natascha (2006) aimed in their study to explore the extent to which students and teachers are able to acknowledge the strengths and weaknesses of a shift in the approach to teaching and learning from a traditional, teacher-centered perspective towards a project- and learner-centred education. It reports on a case study aimed at exploring students' and teachers' perceptions of a project-led education course carried out at an engineering course at a Portuguese university. Overall, 20 students responded to the questionnaire, representing a 45% return rate. Students were also asked to write a letter to the next year's students giving recommendations, especially about what they liked and disliked most in the project, the contact with the tutor and the teachers, teamwork and assessment method. In total, thirteen letters were received. Seven teachers

participating in the experience also responded to a questionnaire which included eight open-ended questions with five dimensions similar to the students' questionnaire and three more related to the course in which each of the teachers was involved. The process of data analysis was undertaken according to two phases: a vertical analysis (Miles & Huberman, 1994) in which each of the respondent's accounts was analysed separately. A second phase was then carried out through a comparative or horizontal analysis (cross-case analysis) (Miles & Huberman, 1994). This enabled checking for recurring themes and regularities as well as contrasting patterns both in students' and teachers' responses. Findings were presented according to the main dimensions included in the questionnaires. Data were collected through questionnaires, letters and interviews. The findings suggest, in spite of some negative experiences and final results for some of the students, a clear recognition of the benefits of a project-based approach to both the teaching staff as well as the students. Both are able to identify interdisciplinarity, high student motivation and the acquisition of soft skills as key features of project-led education

Iris and Matthew (2007) in their study described an experimental six-month study that was created to introduce first-semester graduate students to geological research in fine-grained rocks. The study was conducted within a five graduate-level Clastic period course where students examined the mineralogical and chemical variability in shale samples that outcrop in regions of different thermal maturity along the Ouachita Mountain Fold Belt. A project-based instructional (PBL) approach was used with a driving question of 'What happens to shales during the burial period?' This approach was intended to give students an opportunity early in their graduate studies to participate in authentic geological research. Each sample was analysed for the clay-mineralogy using XRD, whole-rock chemistry using XRF, mineralogy of heavy separates, character of the silt-sized quartz and feldspar, and grain size of the non-clay fraction. Qualitative data analyses from student interview transcriptions revealed that based on their experience with the Ouachita project students were able to approach their own thesis topics, regardless of the subject area, with a more holistic and experienced scientific perspective. The depth and quality of the research questions they asked in their own subsequent research was influenced by their exposure to the Clastic period problem-based project. Developing competency in the techniques of analysis was not the goal of this project but rather developing an overarching understanding of the process used when studying the period of fine-grained rocks. Evidence that this was achieved is demonstrated in the students' final presentation of the Clastic period project at a regional geological meeting. The authors wrote in conclusion that project-based learning experiences help students become more self-directed learners and promote

integrated education. Few problems facing society that involve the geosciences are aligned within disciplines. Subsequently, students need to be able to solve problems that require them to make connections and use relationships between concepts and content. Students that learn information via the PBL approach are better able to do this. This is perhaps the most important goal in graduate school – for a student to be able to recognize how their knowledge and expertise relates to the big picture.

Sola and Ojo (2007) examined the effects of project, inquiry and lecture-demonstration teaching methods on senior secondary students' achievement in a separation of mixtures practical test. This study assessed and compared the relative effectiveness of three methods for teaching and conducting experiments in separation of mixtures in chemistry. A pre-test/post-test experimental design with a control group was used. Two hundred and thirty-three randomly selected Senior Secondary School I (SSS I) chemistry students were drawn from four Local Government Areas of Osun State, Nigeria. The research instruments developed were a 25-item supply/select response questionnaire used for the pre-test and post-test Chemistry Achievement Test (CAT). Students were divided into three experimental groups and one control group. Students in the three experimental groups were subjected to treatment using project, inquiry or lecture-demonstration method respectively, while students in the control group were taught using the traditional method of teaching. The pre-test was administered to students in all the four groups before teaching commenced and after the teaching and the experiment, a post-test was then administered. The data was analysed using t-test analysis, ANOVA and Scheffe post-hoc analysis. The results of ANOVA of the difference in the scores of the post-test of the project, inquiry and lecture-demonstration methods and the control group showed a significant difference between the groups. Students taught with the project method performed better in the Chemistry Achievement Test (CAT) than the students taught with the lecture-demonstration method, while those students taught with the lecture-demonstration method performed better than those taught with the inquiry method. The study concluded that the project method enhanced better performance in a Chemistry practical test better than either inquiry or lecture-demonstration method.

Pamela's **(2008)** research explored the constructivist theory for which an epistemological stance is expressed as an educational ideology, or referred to as constructivism; essentially to construct one's own knowledge. Six energetic five-year-old boys from an urban public school, located within a Mid-Western state of the USA became the focus of this study. The early learning programme implemented the project approach, particularly inspired by the world-renowned 'Reggio Emilia'

philosophy from Reggio Emilia, Italy. Also, several components from the public school corporation were implemented into the kindergarten curriculum framework including guidelines for art, mathematics, music, physical education, reading, and science. Many projects began to surface from the curricula framework and philosophy. One particular classroom of six kindergarten boys was found to be interested in learning about racing cars. It was at this point that a greater appreciation for the constructivist theory became an exploratory venture. Each of the private sessions was scheduled for one hour in length for six weeks. The one-hour sessions were divided into fifteen-minute segments that included: discussions, drawing, racing car activities, manipulating, writing, reflecting and revisiting. After administering the project approach among the participants, at the end of the sixth week many benefits were apparent for the participants, as follows:

i. The participants could share and discuss their ideas and thoughts with author of this study.

ii. The constructive approach used in this study encouraged the participants to reflect on the action of construction which figures out the pattern for their action change.

iii. The participants can realize, connect, interpret and analyse the dimensions and the aspects of their projects.

iv. Supporting the celebrative system and value between the participants.

v. Enhancing creative thinking for participants.

Sasche, Teresa, Keith and Chris (2008) in their study aimed to explore how a veteran first-grade teacher collaboratively negotiated the implementation of a project with her students while at the same time addressing grade-level standards. Researchers investigated the teacher's strategies for integrating the district's standards into project topics, investigative activities, and final presentations. They also examined the teacher's strategies for promoting student participation in project planning and independent problem-solving. The research took place during a six-week study of biomes in the second semester of the school year. By the teacher's preference, all the students were fully integrated into all classroom activities, no matter what their learning abilities. This particular year there were 22 students, 12 girls and 10 boys. One of the students spoke Spanish as his first language, four were identified as gifted, one was identified as autistic, and one student was an early-entry student due to relocating from another state of the USA. Data sources included field notes, teacher interviews, videotaped observations, and transcribed interviews with teacher and students. As an extension of

the teacher-directed approaches to implementing the project approach, the results of this study revealed a collaborative approach to implementing projects that allowed the teacher and the students to work together for project planning and learning. The teacher felt successful with meeting grade-level learning needs, and the students were given the opportunity to fuel their learning by expressing their social, natural interests and curiosities, and become problem solvers.

Savich (2008) examined the action research project by investigating approaches and techniques that would improve critical thinking skills in history classes at the secondary level. Students demonstrated apathy and boredom in history classes where the emphasis was on rote memorization and the regurgitation of accepted facts and conclusions. The problem was to determine which teaching and learning strategies, techniques, and methods were the most effective in improving critical thinking skills in history. The research methodology consisted of a comparison of the inquiry or interactive method of teaching history with the lecture method. Two groups of high school students were chosen. One group was taught history using the lecture method, the other group was taught using the inquiry method. The criteria were whether students were able to analyse, evaluate, conceptualize, and synthesize information, not just whether they could memorize facts. A comparison of student performances on tests, essays, quizzes, and assignments was used for assessment, evaluation, and comparison. The inquiry strategies included role playing, simulations, re-enactments, examining and analysing multiple texts, studying oral and visual presentations, analysing bias by examining different viewpoints and perspectives, and analysing documents and original and primary sources. The research results demonstrated that when critical thinking skills were emphasized under the inquiry method, students achieved higher scores on tests, quizzes, and assignments and gained a deeper and more meaningful understanding of history. The research results showed that the inquiry method improved critical thinking skills based on the comparison of test and quiz score grades but yielded better results when critical thinking skills were integrated with content matter and when students were motivated and engaged and possessed an attitude that placed value on critical and higher order thinking. Finally, the lecture method was more effective than the inquiry method in presenting the background and introduction to a topic or issue. Moreover; critical thinking skills gained by the project method were shown to be effective in achieving a more in-depth and meaningful understanding of history by high school students, but relied on the integration of the critical thinking skills by the projects approach with subject content and on student motivation. Savich concluded that educators need to incorporate strategies that emphasize critical thinking skills

in order to improve the understanding of history, but the strategies must be integrated with the content matter.

Beneke and Ostrosky (2009) investigated teachers' views of the efficacy of incorporating the project approach into classroom practice with diverse learners. This study provides preliminary insight into teachers' perspectives on ways that the project approach can help to support instruction of learners with a range of strengths and needs, and learners from a variety of cultural, economic, and linguistic backgrounds. Pre- and post-training interviews were conducted with seven pre-school teachers who attended professional development sessions on the project approach. Interview questions focused on teachers' perceptions of the impact of implementing the project approach on their ability to meet the learning needs of diverse learners. Teachers' perceptions of factors that facilitated implementation of the project approach were studied. Themes related to four factors emerged from the teachers' comments: (1) Participation and learning of diverse learners was facilitated. (2) Positive effects, critical and creative abilities were noted for children's social and academic learning, which teachers attributed to improved motivation. (3) The availability of 'real objects' and materials in the classroom was beneficial. (4) Positive effects resulted from including children in planning. These findings support research addressing the benefits of including children with a range of abilities in school settings and the benefits of child-initiated learning for all children. Optimal strategies for the provision of professional development in the project approach are explored, and recommendations for further research are suggested.

Sallee and Michaelene (2009) studied teachers' views of the efficacy of incorporating the project approach into classroom practice with diverse learners. In this study the authors presented a set of findings from a larger study of professional development for teachers who use or plan to use the project approach. This study depended on interview data collected from seven teachers in state-funded pre-kindergarten programmes to address the following two questions: To what extent do teachers in preschool for all classrooms perceive the project approach as an effective way to teach a group of diverse learners? What factors facilitate teachers' implementation of the project approach?

Seven Illinois certified early childhood teachers from child care centres that had recently been awarded 'Preschool for All' grants by the ISBE Early Childhood Division participated in this study. The teachers attended one of two 3-day institutes on the project approach funded through a collaborative effort between the ISBE, the Illinois Association for the Education of Young Children (IAEYC), the Chicago Metro Association for the Education of Young Children (CMAEYC), and the

Illinois Resource Center on Early Childhood (IRC: EC). The seven teachers were interviewed individually prior to and then approximately three months after attending one of the institutes. Teachers were categorized based on their description of prior experience with the project approach as having no experience (NE), some experience (SE), or as being experienced (E). Those who fell into the NE category had either never heard of the project approach prior to the interview or had learned about it through college coursework or workshops, although they had never tried implementing the approach. Teachers in the SE category had learned about the project approach through college coursework or workshops and had attempted implementation prior to the interview. One teacher who was categorized as experienced (E) had learned about the project approach through college coursework and workshops, had attempted to implement the approach in the past, and was implementing the approach at the time of the first interview. Data were gathered from pre- and post-training interviews with the seven certified Preschool for All (PFA) teachers who had attended one of two 3-day institutes on the project approach with administrators from their programmes. Teachers were interviewed twice, once prior to attending an institute for training on the project approach and again after attending the institute. All pre-institute interviews were completed within a four-week period prior to the institute that each participant was scheduled to attend, and all post-training interviews were completed within a 16-week period following attendance at the institute. Data were transcribed and analysed from the first set of interviews. The findings from this analysis were then used to revise questions and develop probes for the post-training interviews. Audio-taped interviews were transcribed and reviewed for inaccuracies by asking each interviewee to review her transcript for accuracy and clarity (i.e., member checking). Analyses of the data began once the participants had reviewed their transcripts or passively consented to their accuracy. Across fourteen interview transcripts, only one participant made a minor edit to her transcript. The data from each transcript were merged by category, and themes emerged as the researchers looked for common across responses. Mutually exclusive definitions were developed so that each participant's comment fit only one definition. The researchers discussed the emerging themes and definitions, and adapted them as needed. Findings considered to be major were those that were voiced by three or more teachers. The findings of this study were as follows:

i. Four major findings related to the research questions emerged from the data regarding aspects of the project approach that teachers found helpful: (1) the positive impact of the project approach on diverse learners and their creative thinking, (2) child outcomes and motivation, (3) the provision of real objects and materials, and (4) planning with children.

ii. Four of seven teachers reported that implementing the project approach increased their ability to include diverse learners. In this study, diverse learners encompassed children with special needs, children with challenging behaviours, or children who came from environments that put them at risk of academic failure.

iii. Participants' comments indicated that they found increased opportunities to adapt classroom activities, and consequently children with a range of abilities were able to participate in project work.

iv. The teacher participants described positive changes in children's social development because of an increase in meaningful activities and materials to talk about as a result of project work.

v. Four of the seven teachers also stated that the project approach increased the interest, motivation, and attention span of diverse learners in their classrooms.

vi. Four participating teachers also indicated that they perceived the project approach as supporting diverse learners' academic learning as well as social development.

vii. Some participants commented that identifying diverse learners' interests helped them plan more effective instruction.

viii. Planning project-related activities with children was a positive experience for five of the seven teachers who participated in this study. They reported that when they shared control of planning project activities, children seemed more motivated and increased their participation in project work.

ix. Teachers also reported that their own ability to ask open-ended questions, elicit questions from children, and identify children's interests increased over the course of planning projects with children.

Shek and Sun (2009) conducted their study among six schools participating in the Full Implementation Phase of Project PATHS (Secondary 1 Level) were randomly selected and invited to join this research study. After completion of the Tier 1 Program, 216 Secondary 1 (Grade 7) students in the participating schools were randomly invited to write a reflective journal in the form of a weekly diary to reveal their perceptions and feelings regarding the Tier 1 Program and the related benefits. Results of the qualitative data analyses showed that most of the respondents: (a) had positive views of the programme, (b) had positive views of the instructors, and (c) stated that they

had acquired competencies at societal, familial, interpersonal, and personal levels after joining the programme. The qualitative findings based on students' weekly diaries provide additional support for the effectiveness of the Tier 1 Program of Project PATHS in Hong Kong.

Yaron (2009) mentioned in his study that infusing creative thinking competence through the design process of authentic projects requires not only changing the teaching methods and learning environment, but also adopting new assessment methods, such as portfolio assessment. The participants in this study were 128 high school pupils who have studied Mechatronics from tenth to twelfth grades (16–18 years old). By the end of twelfth grade, the pupils had created 57 authentic projects. The intervention programme had two parts: first, the pupils documented their project according to a creative design process that had been introduced to them. Second, the projects were assessed according to a creative thinking scale. This scale was designed to assist pupils in documenting the design process. It could be used as a guideline for teachers and pupils during the course of the project. The research examined pupils' performance during project-based learning. The research tools included observations of class activities, portfolio assessment, and external matriculation assessment. The findings show first that pupils learned to document their design process. Second, pupils' projects demonstrated various levels of creative thinking skill. Evidence for high-level documentation of the projects was found in pupils' portfolios. On the other hand, Yaron concluded there is much to be learned about documenting teamwork and pupils' reflection. This research could assist researchers and teachers who are interested in assessing engineering education outcomes.

Yvonne and Josefina (2009) examined various dimensions and effects of some features of the project approach among toddlers, while others are best left until children are older. This study shares the process through which teachers and administrators at a private school in Mexico City gained awareness of the importance of listening, observing, and documenting children's activities to determine how to adapt features of the project approach to meet the needs and interests of toddlers. This adaptation of project work, called 'project practice', engaged toddlers in developmentally appropriate activities that involved exploration, representation, and the search for understanding. The sample of this study consist of children aged two to eighteen years (pre-kindergarten to grade 12). Various projects and activities were conducted among the present sample with continuous observation during their activities, especially for toddlers. These projects and activities included environment projects, agriculture, cultural and field trips, drawing and painting, making models, and dramatic play. During these projects there were several open discussions, exchange of ideas and

experiences…etc. The main educational and psychological benefits of these projects are described by the authors as follows:

i. The minds of participants are open to new possibilities, and their eyes light up whenever the familiar setting of the classroom has changed to harbour a new provocation, an invitation to use their skills and strengths in an organized way. Also, children who have been invited early on their learning journey to represent what they see or even what an object or experience awakens in them tend more naturally to seek opportunities to represent new information.

ii. Teachers of three-year-olds at the school comment that when the children who have been in the programme arrive in their classrooms, they can see how much more purposeful their exploration is when faced with open and less directed experiences. The teachers of the three-year-olds also comment that the toddlers are familiar with a wider variety of representational media than children who are new to project work. Because the children have explored many materials for several months, they seem to be interested in using them to make things. In contrast, children who have never been in school or who come from other programmes are eager to explore rather than to represent.

iii. When children are engaged in experiences that involve self-directed exploration, teachers can see their emerging interests and creative abilities and behaviours, as opposed to when they conduct more guided activities where there is not much room for children to do different things. Just as happens with older children, learning is more meaningful when toddlers use their developing skills with a purpose in the context of a topic. Moreover; they gained various creative and critical thinking abilities.

iv. The authors of this study noted that some features of project work are of value for toddlers, while others are best left until the activities are more developmentally appropriate.

Anouk and Diane (2010) mentioned that environmental problems stem from inappropriate decisions made by individuals and groups. Due to the complexity of both environmental situations and the decision-making process itself, decisions are often difficult to make regarding the environment. Several researchers have, however, found that it is possible to improve the decision-making process among young people through education. Ten- and eleven-year-old students were asked to make several decisions regarding the ways of life of citizens in a sustainable residential neighbourhood while it was under construction. The study sought to describe the decision-making

process of students before, during and after using pedagogical interventions whose goal was to improve the decision-making process. Global simulation activities to get closer to nature, teaching three steps of decision-making, transmitting knowledge and writing in a reflexive journal were used to educate the students on how to make better decisions. The reflexive journals and one-on-one interviews were the main tools used to collect data. At the beginning of the project, the students had a hard time clarifying goals associated with their decisions, identifying alternatives, evaluating their disadvantages and structuring their decision-making process. Their choices were simple, and orientated towards egocentric rather than environmental goals. Before and after interventions, the students increased their ability to structure their decision-making process and to cogitate, progressively making compromises between their personal needs and certain environmental considerations.

Bennett (2010)in his investigation studied the strategies for using related cases to support design problem solving. The study reported in his paper investigated learners' understanding of multimedia instructional design and development derived from the analysis of two richly detailed cases, and how this understanding then supported learners in their own design projects. A qualitative case study approach was used to follow a class of Master's degree students engaged in a technology-supported, case-based learning environment. Students' work from case analysis, group project and reflective tasks was the key data source, complemented by interviews with students and their instructor, observations of class meetings, and the collection of online discussion list records and electronic resource files. The study found that the case analysis task raised learners' awareness of design approaches and project management strategies, and that discussion and reflection play critical and creative roles in developing students' understanding and interesting.

Dominguez and Jaime (2010) examined the learning of database design by the project based approach organized through a course management system. This study describes an active method for database design learning through practical tasks development by student teams in a face to face course. This method integrates project-based learning and project management techniques and tools. Some scaffolding is provided at the beginning that forms a skeleton that adapts to a great variety of student-proposed domain projects and emulates the real way of working in database design. The authors included a quasi-experimental study in which the results of five academic years were analysed. For the first three years, a traditional strategy was followed and a course management system was used as material repository. The active method was introduced for the last two years and coexisted with the traditional one. The course management system greatly simplifies the

management of the numerous documents produced, the description and scheduling of tasks, the identification of teams, as well as all communication needs. The authors analysed various aspects such as drop-out rates, exam pass rates, exam marks, and class attendance. Students that followed this active learning approach obtained better results than those that followed a traditional strategy. Besides, the experience of the introduction of such a method in a student subgroup positively influenced the whole group.

Eskrootchi and Oskroch (2010) tested the effectiveness of project-based learning in a technology-rich environment. A science project, Land-use in Watershed, which takes advantage of internet facilities, was developed and integrated with a simulation software package, Structural Thinking and Experiential Learning Laboratory, with Animation (STELLA), developed to promote deeper understanding of land-use by students. The participants in the study were 72 students in a quasi-experimental research design. Statistical analyses showed that students who participated in the manipulation of the experimental model of the watershed experiment and the STELLA simulation performed best on understanding the watershed concept. This study suggests that students learn best by actively constructing knowledge from a combination of experience, interpretation and structured interactions with peers and teachers when using technology. Simulations do not work on their own, there needs to be some structuring of the students' interactions with the simulation to increase effectiveness.

Lewis (2010) in his study conducted a specific project under the title of Data Day, an event that is the culmination of a three-week unit, is the perfect opportunity to work across disciplines and, in particular, aligns well with the skills and objectives geography teachers work on with their students. Bruce Jones at The Blake School in Hopkins, Minnesota, was the originator of Data Day. Jones described the project as a three-week unit on the scientific method in which Data Day is the focal point. On this day, students invite others in the school community to be the subjects of their experiments. This takes place in a carnival-like atmosphere as students ask other students, parents, and teachers to participate in taste tests, basketball shoots, memory games, video games, visual puzzles, song recognition activities, and other data-gathering experiments. Students are immersed in the scientific methods of planning and carrying out experiments, and gathering quantities of data, which are then analysed, graphed, and presented orally and in published form. Bridget Williams, a fourth- and fifth-grade science teacher, established the annual Data Day at her school several years ago. Jones was her mentor, and Williams adapted his ideas to fit the schedule and needs of fifth-grade students. Before engaging in applying the scientific method for the Data Day project, Williams

taught students the scientific method and why each step is critical to the success of the experiment. The scientific method is: (1) observation; (2) statement of the problem/ask a question; (3) research; (4) hypothesis; (5) experiment; (6) record the data; (7) organize and analyse the data; (8) reach conclusion; and (9) share results. This Data Day model is a strong one for helping students see the interconnectedness of the different disciplines and for each discipline to achieve its desired objectives.

Stepath and Bacon (2010) in their study administered a hands-on Marine Debris Clean-up Project, for seven to eight weeks, using a service project to provide an introduction to marine science ecology, watershed interrelationships, the scientific method, and environmental stewardship to eighth-grade middle school students. It utilized inquiry-based learning to introduce the sources and impacts marine debris to the students, while demonstrating the integration of service learning programmes into meaningful learning situations. The goals of the project were to promote inquiry-based learning, address Hawaii Department of Education)science learning outcomes, improve students' care for the environment, train students to improve their future through service learning, to develop pedagogy that engages learners in living laboratories by using preparation, action and reflection phases of instruction, and to promote university, community. It was collaboration between the University of Hawaii Marine Option programme, a local NGO, and science teachers from the Chiefess Kamakahelei Middle School, Lihue, Kauai, Hawaii. Students had a chance to learn and apply the scientific method in a real world situation to improve the environment where they live. This programme engaged 300 middle-school students in activities designed to help them reach Hawaii Department of Education science benchmarks, through learning natural systems, monitoring a beach, testing hypotheses, and collection and analysing data associated with a beach clean-up. This outdoor learning experience not only gave the students hands-on science experience, but also provided opportunities for students to write a final report, and give an oral presentation about what they learned. These students applied the scientific method in a real world situation, which was shown to be meaningful by helping them to improve the local environment where they live through active stewardship participation. The project demonstrated how service-learning projects are opportunities for applied science learning, which address real problems existing in the students' community and the ocean environment. As active participants the students learn to develop real life solutions using scientific principles and concepts, and improve their academic development. The project instructors observed positive change in the students' environmental knowledge and attitudes,

which will lead to the students taking individual responsibility for positive long-term actions and consequences.

Zimmerman (2010) started from the assumption that project based learning (PBL) in twelfth-grade social studies classrooms contributes to the development of life skills for high school seniors in this advanced and globalized era. His research investigates student experiences with PBL methods for helping them acquire skills along with a case study of a successful PBL programme. The purpose of this study is to help educators discern the value of this instructional strategy. Constructivism refers to the concept that students learn through their experiences and curriculum designed around the Theory of Multiple Intelligences allows them the opportunity to learn through a variety of methods during each lesson. A qualitative approach to gathering research, using the interview format, was conducted with three teachers who had created a unique PBL programme in their high school classrooms. The focus of their work was to document the success in teaching life skills to high school students with the goal of preparing them for college, jobs, and life after secondary education. The researcher also gathered information by observing the teachers as they were involved in working actively with students using PBL. The major themes found within the literature highlight the success of the PBL method, the importance of skill building for life and that fundamental changes are needed for education and instruction. The researcher asserted that he can conclude that from his reading, review, research, interviews and observations that the PBL method is successful in teaching and building life skills in high school social studies classrooms, and is able to better prepare students for life after secondary education.

Zaid (2011) in his study focused on the importance of critical thinking in teaching approaches especially in history courses, such as using thinking programmes in teaching. This study aimed at exploring the effectiveness of a training programme based on Cognitive Research Trust (CoRT) strategies and approaches to develop seventh-grade students' critical thinking in a history course. To achieve this goal, specific approach which is a training programme was designed based on the CoRT strategies approach. A critical thinking test was prepared for a unit, 'The Age of Revolutions'. The study sample consisted of 163 seventh-grade male and female students in Amman Second directorate. The subjects were divided into two groups. The experimental group consisted of 80 male and female students who were taught through the CoRT programme, and the control group consisted of 83 students who were taught using the regular method. The results showed statistical differences in seventh-grade students' critical thinking in a history course related to teaching methodology and supported the training programme approach which is based on CoRT strategies.

CHAPTER 4

CASE STUDY

Chapter 4

Case Study

The case study methodology refers to the collection and presentation of detailed information about a particular participant or small group, frequently including the accounts of subjects themselves. A form of qualitative descriptive research, the case study looks intensively at an individual or small participant pool, drawing conclusions only about that participant or group and only in that specific context. Researchers do not focus on the discovery of a universal, generalizable truth, but they typically look for cause-effect relationships and emphasisis placed on exploration and description (David, 2007).

Case study research excels at bringing forth an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research. Case studies high light detailed contextual analysis of a limited number of events or conditions and their relationships. Case study refers to a work as a case study might mean (a) that its method is qualitative, small-*N;*(b) that the research is ethnographic, clinical, participant-observation, or otherwise 'in the field' (Yin, 1994).

Concerning this study, it consists of a small sample of students which is not reflective of the responses of all students in the State of Kuwait. This is a case study in order to examine the effect of the project method on the development of the target variables among secondary school students in State of Kuwait.

4.1. Statement of Problem of Case Study

Firstly, this research seeks to shed light on the various aspects and dimensions of the project method as theoretical and practical theory. Moreover, the researcher will survey and discuss various definitions, thoughts, opinions, and the benefits of the project method with its obstacles. Furthermore, we test differences of students' scores between the genders (males, females) and academic specialization (scientific and literary) among the study variables. In addition, we study the relationship between the project method and social and scholastic environments, on the one hand; besides, its relationship with the specific variables of creative thinking, critical thinking and

emotional intelligence through realizing its positive or negative effects on these variables and examining the scores pre- and post administration of tools among students during their working and practising in their project method in the field of agriculture. More specifically, this research also aims at an understanding of the nature of the correlational and predictive relationships between creative thinking with the target variables of critical thinking and emotional intelligence, also to determine the effect of gender and academic specialization of students on creative thinking by ANOVA technique.

Furthemore, we cannot understand the project method without studying the other relevant psychological variables and its effects. Thus, it is of paramount importance to explore the effect of the project method on the target variables on the one hand, and study the relationship and predictive aspects of creative thinking with other variables of this study on the other hand.

4.2. Objectives of Present Study

Generally, this study seeks to explore the effect of the project method on the target variables of current study in an agriculture project among secondary school students in the State of Kuwait. More specifically, this study seeks to fulfil the following objectives:

i. To reach a sound framework concerning the nature and the dimensions of project method and its relevance with some educational, psychological and environmental effected factors examining the variables under study by studying its theoretical perspectives;

ii. To present contemporary thought, ideas and related studies conducted in the area of this study, so that researchers with relevant interests will benefit;

iii. To present a descriptive analysis of the target sample of this study;

iv. To examine the differences between the gender scores (males and females), also between academic specialization scores of students (scientific section and literary section) in the variables of the present study;

v. To investigate the directions of the correlations between the three variables of the present study – which are creative thinking, critical thinking and emotional intelligence – among the total sample of secondary school students;

vi. To study the effect and interaction of gender (males, females) and academic specialization (scientific and literary section) on creative thinking;

vii. To determine the best predictors of creative thinking among the study variables of critical thinking and emotional intelligence; and

viii. To explore the effect of the project method on an agriculture project among secondary schools on the study variables; creative thinking, critical thinking and emotional intelligence**.**

4.3. Definitions of Study Variables

i. Project method

The project method has been described as: 'That kind of method which focuses on various scholastic activities, whereas students can find their selves by their working and practicing together among specific problem or subject or topic with several chances of open discussions and exchange educational experiences, educational progressive thoughts and democratic ideas. Moreover, students can discover and develop their creative thinking and other abilities by sharing with each other in these scholastic projects.' (Grady& Julie, 2007).

ii. Creative thinking

Guilford (1959) described creative thinking as a'hierarchy consisting of a number of mental abilities and proccesses that differ according to the context'. The mental abilities identified by Guilford are:

i. Fluency: ability to produce a great number of appropriate responses in a given time in the face of a given situation or problem.

ii. Flexibility: ability to produce a great number of varied ideas.

iii. Originality: ability to produce unfamiliar and uncommon ideas".

iii. Critical thinking

Critical thinking is 'the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered, or generated by, observation, experience, reflection, reasoning, or communication, as a guide of belief and action. For its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.'(Linda, 2007).

iv. Emotional Intelligence

Emotional intelligence is the 'ability to recognize the meanings of emotion and their relationships, and to reason and problem-solve on the basis of them. Emotional intelligence is involved by the capacity in order to perceive emotions, assimilate emotion-related feelings, understand the information of those emotions, and manage them.' (Mayer, Caruso, & Salovey, 1999, p. 267).

4.4. Research Hypotheses

In the light of the objectives of the present study, the empirical literature, the general directions of the findings of the related studies, and definitions of the study variables, the following hypotheses were formulated to be tested as follows:

i. There will be differences between the gender scores (males and females) in creative thinking, critical thinking and emotional intelligence;

ii. There will be differences between the scores of students of different academic specialization (scientific section and literary section) in creative thinking, critical thinking and emotional intelligence;

iii. There will be astatistically positive correlation between creative thinking and critical thinking among the total sample of this study;

iv. There will be a statistically positive correlation between creative thinking and emotional intelligence among the total sample of this study;

v .There will be significant effect and interaction of academic specialization and gender on creative thinking among the total sample of this study;

vi. Emotional intelligence will be the most important predictor of creative thinking among the total sample of present study; and

vii. There will be an effect of project method theory in the academic discipline of agriculture on the study variables; creative thinking, critical thinking and emotional intelligence.

4.5. Methodology

In the previous sections, an introduction to the present problem, the objectives, variables definitions and the hypotheses of the study have been discussed. The details and the phases of the methodology are as follows:

4.5.1. Sample

The sample of the present study consisted of two categories:

4.5.1.1. Standardization Sample

There were 50 participants in this category, 25 boys and 25 girls (Kuwaiti students). The participants were in the eleventh and twelfth grades of secondary school, with a mean age of 16.7 years, SD 1.89 years. They were selected from government schools, two boys' schools and two girls' schools, in Al-Farwanyah Province, the third province of the State of Kuwait (there are six provinces in the State of Kuwait). The sample represented 0.07% of the total students in this province (71,397students) (Educational Statistical Group, 2012). This exercise was the first administration for the variables of present study, to make sure of its validity and reliability.

4.5.1.2. The Main Sample

The main sample of this category was selected among adolescents on the basis of a stratified random sampling method with mean age of 17.2 years, SD 1.94 years. They were eleventh- and twelfth-grade students from government schools, two boys' schools and two girls' schools, in Al-Farwanyah Province (see 4.5.1.1). The sample represented 0.2% of the total students in the province. The total number of the sample at the begining of the assessment was 173(84 boys and 89 girls), but the actual number who completed all measures was 157 (75 boys and 82 girls). This was the second administration of the study tests. Subjects had comparable socio-economic backgrounds. The main demographic characteristics of the subjects in the selected sample are: their ages between 15 and 18 years, family incomes in the category of KD 1810–KD 2250 (Kuwaiti Dinar is the main currency of State of Kuwait, KD 1 = US 3.3), their main form of transportation is private car, not other kinds of transportation such as taxi, bus…etc., they live in their parents' houses not in flatsetc, their parents are not divorced and lives together in their own houses, still working not retired, with no mental or physical handicaps, all subjects are citizens and live in the same province. The professions of the subjects' fathers are presented in Table 3.

Table 3.
Professions of Subjects' Fathers

Professions	Frequency	Percentage %
Supervisor	11	7 %
Businessman	23	14.6 %
Government officer	Max 49	31.2 %
Directors	15	9.5 %
Chartered accountant	9	5.7 %
Doctors	14	8.9 %
Engineers	10	6.3 %
Coachs	Min 3	1.9 %
Non-governmental officer	6	3.8 %
Educators	17	10.8 %

M= 15.7, SD= 13

The distributions of the professions of the subjects' fathers are set out in Figure4.

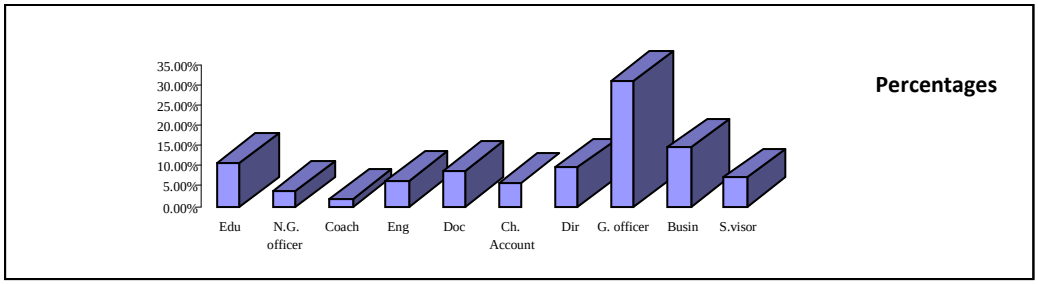

Figure 4. Professions of Subjects' Fathers Percentages

The highest percentage of the fathers' professions is government officer (31.2%), then businessman (14.6%), then educator (10.8%) etc. The lowest percentage is coach (1.9%).We can note that there are no manual occupations for the subjects' fathers, because they are the minority in Kuwaiti society, where manual work is usually undertaken by foreign workers. Furthemore, the social and educational background for most fathers of the subjects would not indicate any kinds of manual work – they work in higher levels of professions with high salary.

In Table 4, we can note the characteristics of the total sample concerning their grades and scholastic academic majors, by gender.

Table 4.

Characteristics of the Total Sample

Sex	Literary Major			Scientific Major			Grade 12			Grade 11		
	Percentage of Total Sample	Percentage of Total Sample Regarding Sex	N	Percentage of Total Sample	Percentage of Total Sample Regarding Sex	N	Percentage of Total Sample	Percentage of Total Sample Regarding Sex	N	Percentage of Total Sample	Percentage of Total Sample Regarding Sex	N
Males	61%	39%	25	32%	54%	50	22.2%	47%	35	25.4%	49%	40
Females	39%	61%	39	27.3%	46%	43	25.4%	53%	40	27%	51%	42
Total		100 %	64		100 %	93		100 %	75		100 %	82

Note*:* M=75, F =82, T=157

4.5.2. Procedure

The researcher sent an official letter to the principals of each of the schools where the study would be conducted. The letters pointed out the significance of the study and its hoped-for positive reflections on the different scientific fields and the different educational institutions. After that, the researcher met the principals of the schools to give a complete explanation of the dimensions and aims of the study.

The headmasters welcomed the study and thankfully facilitated its application, and they mentioned that the psychological researchers who work in the schools would help with its application, i.e., the administration of the tools and obtaining the required information about the subjects from school records. Four researchers from the psychological service of the Ministry of Education helped the researcher in the application the specific tests of present study. Before setting them the tests, the

researchers gave a synopsis of the study to the subjects, asserting that the results would be used privately and would not have any reflections on their academic scholastic achievements and records. That is, they were told that the results would have nothing to do with their success or failure. This was necessary to secure valid and sincere responses, and cooperation on the part of the subjects. Furthermore, the school administrators were asked to keep all the subjects away from any stressful situation which could affect their completion of the programme.

After distributing the relevant booklets, answer sheets and questionnaires among the students (without mentioning the variables on these papers, then or during our verbal introduction for the students about our mission), the researchers demonstrated a model answer using PowerPoint. The students were asked to write their background data on the answer sheets before starting to complete the tests. The students were told to complete the tests and not to talk to each other. This was to ensure that the students would not compare answers and thus distort their responses. In other words, they were told to complete the exercise independently so that this would give a real picture of their personalities and creative abilities. Also, they were told to hold their hands up in case they had any questions to ask. Before any testing session, the individuals who helped the researcher were reminded to make sure that they took students' packages once when they finished with the tools. Testing sessions were scheduled for the male and female subjects as set out in Table 5.

Table 5.

Schedule of Testing Sessions

Days	Tests
First Day	Creative Thinking Test
Second Day	Critical Thinking Test
Third Day	Emotional Intelligence Test

The tests were applied among 157 subjects (75 boys, 82 girls) in November 2010, before entering into the main project method, which is an agricultural project, so the administrations of the specific tests were pre-administration (the first phrase of the present study). Within six months from November 2010 to May 2011 the subjects of the present sample studied various theoretical and practical lessons about an agricultural project, whether in the classroom or in the school agriculture fields. In May 2011 same tools were applied to the same subjects of the study as the post-administration (the second phrase) in order to study and realize the effect of the project method (agriculture project) on the study variables. The subjects of this study had already selected a specific topic for their project which is: Are there positive effects of practising an agriculture project on our personal and cognitive abilities?

4.6 Instruments Used and Techniques

Several instruments and techniques were used by the present researcher in order to collect data and make various analyses for the presented study, and these instruments were used on the basis of: the level appropriate to the sample's ages; their social and educational background; and the levels and dimensions of the variables. These instruments consisted of:

4.6.1 Creative Thinking Test (Creat CTT)

This scale was developed by Sa'ed (1999) in order to measure various components of creative thinking; fluency, flexibility, originality and sensitivity to problems.

Description and Scoring of "Creat CTT"

This scale consists of 38 multiple-choice items, each item is followed by five choices (strongly agree–strongly disgree) where the respondent is asked to choose the one that applies to him or her, the score for the five choices ranged from 1 to 5.

The maximum score of this scale is 190 and the minimum score is 38. A high score means a high creative thinking level, and the low score means low creative thinking level. The time for completion of this scale is 15 minutes.

Psychometric Efficiency of "Creat CTT"

The developer of this scale used many techniques in order to establish the psychometric efficiency of this scale, as content validity and internal consistency, whereas the correlation coefficient reported at r = 0.77–0.86. Also the reliability of the CTT as reported by the developer who used spilit-half method was r = 0.93.

In this study, the researcher verified the validity of this scale by consulting five experts and specialists in the fields of education and psychology from Kuwait University to evaluate the dimensions and components of the CTT as apperance validity. The present researcher cancelled four items following the notices and remarks of experts, and for the rest of the items there was concord (89%) among the experts to be without changes. The final varsion of the CTT consisted of 38 items.

As for the reliability of the CTT in the present study, the developer of this scale used split half method which reported r = 0.93, also by internal consistency which reported of r = 0.88. The present researcher computed the Cronbach's Alpha Coefficient which reported r = 0.79. The previous statistical techniques and values are satisfactory for the validity and reliability of the present scale (CTT).

4.6.2. Critical Thinking Test (Crit CTT)

This scale was developed by James (2006), then translated into Arabic version by Rajab (2009) to test components of critical thinking which are explanation, conclusion, assumption and argument.

Description and Scoring of " Crit CTT "

This scale consists of 18 multiple-choice items, each item is followed by two choices (yes, no) from which the respondent is asked to choose the one that applies to him or her, the score for the five choices ranged from 1 to 2. The maximum score of this scale is 36 and the minimum score is 18. Ahigh score means a high critical thinking level, and a low score means low critical thinking level. The time for completing of this test is 10 minutes.

Psychometric Efficiency of "Crit CTT"

The developer of this scale used many techniques in order to establish the psychometric efficiency of this scale as concurrent validity with C.T.K, where r = 0.78, and internal consistency whereas correlation coefficient reported r = 0.82–0.89. In this present study, the researcher verified

the validity of this scale by consulting six experts and specialists in the fields of education and psychology from the Gulf University in Bahrain to evaluate the dimensions and components of (CTT) as appearance validity.

The researcher cancelled seven items following the notices and remarks of experts, and for the rest of the items there was concord (85.7%) among the experts to be without changes. The final version of the (CTT) consists of 8 items. As for the reliability of (CTT) in this study, the developer of this scale used test-retest method which reported r = 0.87. Also by Cronbach's Alpha Coefficient which reported r = 0.78. The present researcher used Cronbach's Alpha Coefficient which reported r= 0.82. The previous statistical techniques and values are satisfactory for the validity and reliability of the present scale (CTT).

4.6.3. Emotional Intelligence Test (EIT)

This scale was developed by Alrabi'a (2006) in order to measure various components of emotional intelligence; self control, self awareness, achievement drive, and control of social skills.

Description and Scoring of EIT

This scale consists of 44 multiple-choice items, each item is followed by five choices (strongly agree – strongly disgree) from which the respondent is asked to choose the one that applies to him or her, the score for the five choices ranged from 1 to 5.

The maximum score of this scale is 220 and the minimum score is 44. Ahigh score means a high emotional intelligence level, and a low score means low emotional intelligence level. The time for completing of this test is 15 minutes.

Psychometric Efficiency of EIT

The developer of this scale used many techniques in order to establish the psychometric efficiency of this scale as concurrent validity with E.I.S, where r = 0.82, also by validity of content. In this present study, the researcher verified the validity of this scale by consulting five experts and specialists in the fields of education and psychology from the Public Organization for Applied Education and Training in Kuwait to evaluate the dimensions and components of the EIT as appearance validity.

Finally, the researcher cancelled four items following the remarks of the experts, and for the rest of the items there were concord (86 %) among experts to be without changes. The final version of (EIT) consists of 44 items.

As for the reliability of the EIT in the present study, the developer of this scale used Cronbach's Alpha method which reported r = 0.84 and also the split-half method which reported r = 0.82. The present researcher used Cronbach's Alpha as a statistical technique which reported r = 0.89 . The previous statistical techniques and values are satisfactory for the validity and reliability of the present scale (EIT).

4.7. Units of the Agriculture Project

The specific scholastic project of this study is an agriculture project. In this project students can invest their various abilities and skills by practising in the schools' agriculture fields the theoretical and practical aspects of the selected project. This project consists of five units, as set out in Table 6.

Table 6.

Units of the Agriculture Project

Units	Subject	Time table
Unit One	**Fundamental Elements of Agriculture** 1. The soil. 2. Significant basic elements of soil. 3. Soil nature and groups. 4. Problems of agriculture soil.	14th Nov–31st Dec 2010
Unit Two	**Processes associated with agriculture** 1. Initial process. 2. Soil preparation for planting. 3. Basic elements for plant nutrition.	9 th Jan–25 th Feb 2011
Unit Three	**Types of agriculture** 1. Productive agriculture. 2. Beautifying agriculture. 3. Internal plants.	6 th March–7 th April 2011
Unit Four	**Agriculture in the State of Kuwait** 1. Agriculture journey in Kuwait. 2. Role of agriculture and livestock wealth. 3. Fruit palm cultivation in Kuwait.	10 th April–5 th May 2011
Unit Five	General practical and applied lessons in schools agriculture fields.	8 th –30 th May 2011

Students attend three theory lessons per week. Moreover at the end of each lesson there are different practical and applied lessons in the schools' agriculture fields, and sometimes there are visits to commercial and private agricultural establishments in which students will find more kinds of fields, soils, trees, flowers etc., then more practical and applied experiences. For more details of previous units, see the Appendix at the end of this dissertation.

At the end of the interaction between these units, with their theoretical and practical lessons, the students will have gained various agricultural experiences. It is then possible to start the second phrase of this study, which is application of the tools to students in order to study the effect of the agricultural project on them. The three tools are the creative thinking test, critical thinking test and emotional intelligence test.

4.8. Analysis of Data and Results

In the previous section, I have already presented the statement of the study, study problems and objectives, definitions of study variables, study hypotheses, and the methodology.

In this part of chapter, I will deal with the statistical devices used in this study. These included; mean, median, mode, SD, variance, skewness, kurtosis, range, minimum, maximum and the sum of study variables of the samples of boys and girls as set out in Tables 7 and8.

Table 7.
Frequencies Statistical Analysis of Study Variables of Boys Sample (N= 75 Boys)

Statistical Aspects	Emotional Intelligence	Critical Thinking	Creative Thinking
Mean	138.0	27.2	129.1
Median	135.0	28.0	127.0
Mode	123.0	28.0	123.0
Std. Deviation	24.4	2.6	12.0
Variance	597.5	7.2	144.9
Skewness	.52	.27	.66
Kurtosis	3.2	2.6	.54
Range	163.0	14.0	62.0
Minimum	44.0	18.0	106.0
Maximum	207.0	32.0	168.0
Sum	10353.0	2044.0	9686.0

The frequencies statistical analysis values of each variable are presented below in Figures 5, 6 and 7.

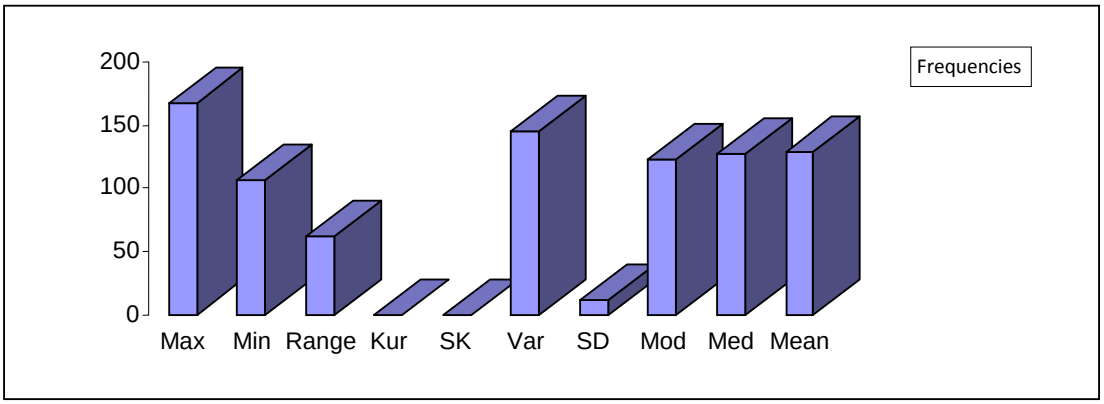

Figure 5.
Frequencies Statistical Analysis of Creative Thinking Test
(Boys)

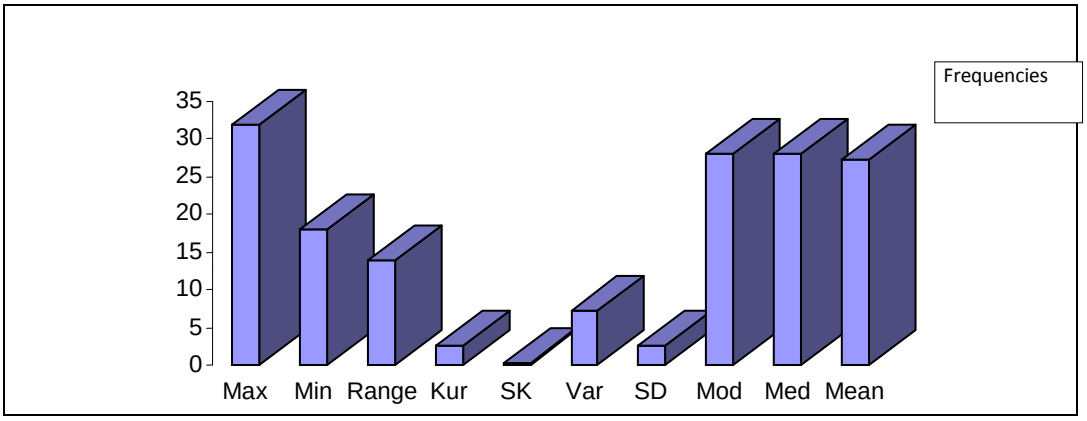

Figure 6.
Frequencies Statistical Analysis of Critical thinking
(Boys Sample)

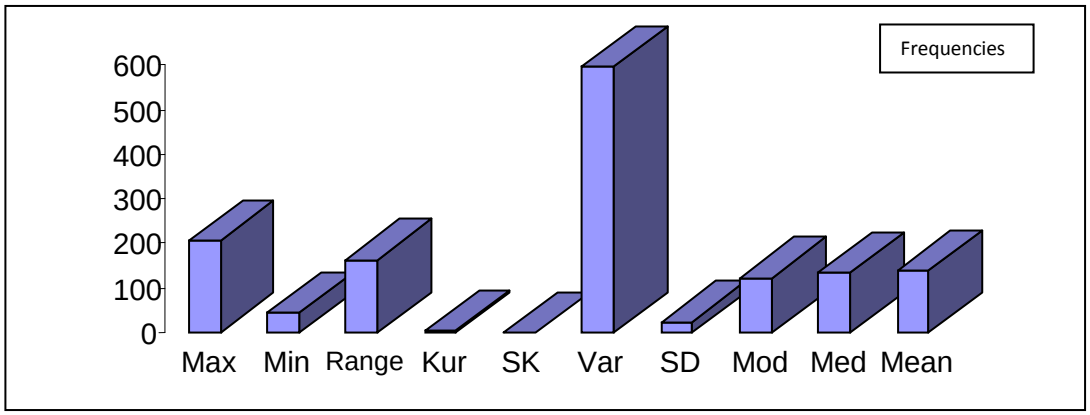

Figure 7.
Frequencies Statistical Analysis of Emotional Intelligence Test
(Boys)

Table 8 presents values of frequencies of study variables of girls sample as follows.

Table 8.
Frequencies Statistical Analysis of Study Variables of Girls Sample (N= 82 Girls)

Statistical Aspects	Emotional Intelligence	Critical Thinking	Creative Thinking
Mean	140.2	27.4	133.1
Median	140.5	28.0	134.0
Mode	129.0	28.0	137.0
Std. Deviation	22.6	3.1	11.4
Variance	512.7	9.6	131.7
Skewness	.96	1.1	.22
Kurtosis	2.7	1.9	.19
Range	135	15.0	54.0
Minimum	150.0	18.0	104.0
Maximum	185.0	33.0	158.0
Sum	11502.0	2252.0	10915.0

The frequencies statistical analysis values of the study variables for the girls' sample are presented below in Figures 8, 9 and 10.

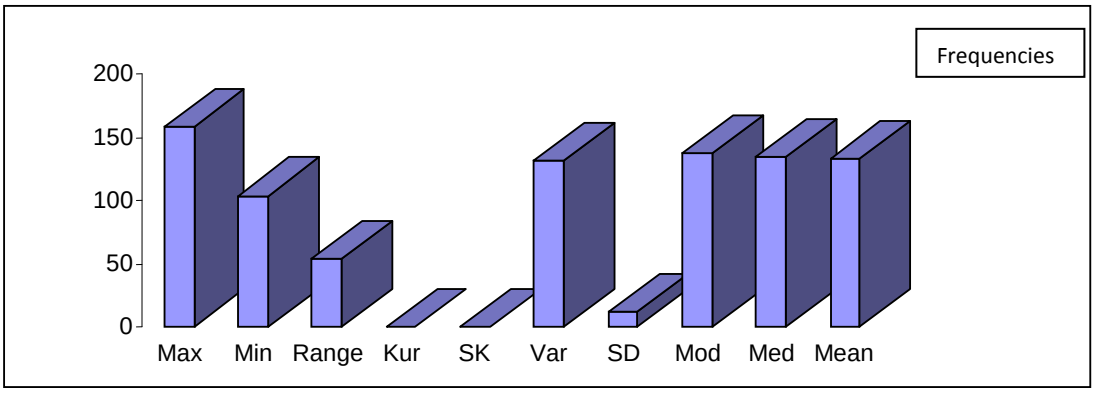

Figure 8.
Frequencies Statistical Analysis of Creative Thinking Test (Girls)

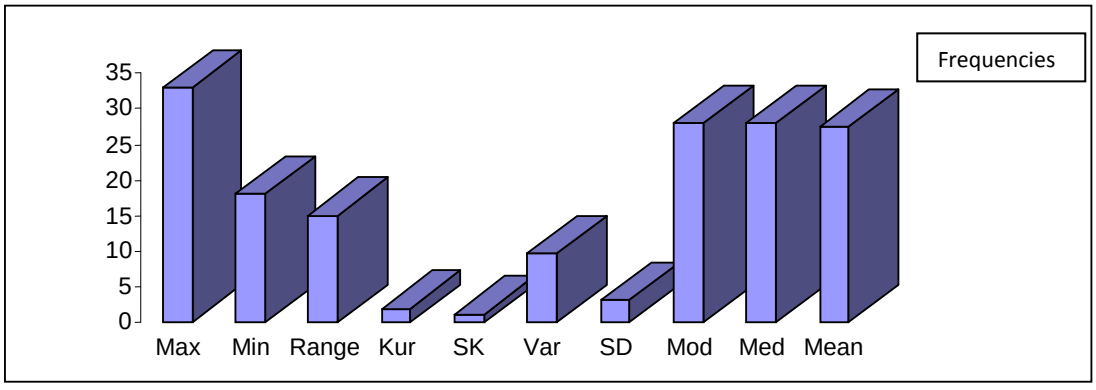

Figure 9.
Frequencies Statistical Analysis of Critical Thinking Test (Girls)

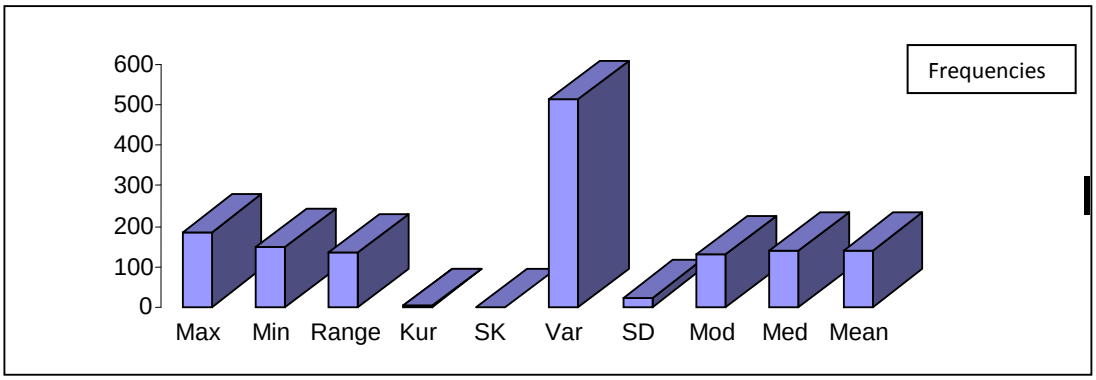

Figure 10.
Frequencies Statistical Analysis of Emotional Intelligence Test (Girls)

t-test was used in order to detect the difference between the genders (boys and girls) in the variables of the study. Table 9 below presents the mean differences across the variables.

Table 9.

Mean Differences of the Variables between Genders

Variables	Boys		Girls		t - value
	M	SD	M	SD	
Creative Thinking	129.1	12.0	133.1	11.4	2.11
Critical Thinking	27.2	2.6	27.4	3.1	0.45
Emotional Intelligence	138.0	24.4	140.2	22.6	0.42

Note: N = 75 Boys, 82 Girls

Table 9 presents t-test values for the differences between boys and girls among the variables of the study; creative thinking (t =2.11), critical thinking (t = 0.45), and emotional intelligence (t = 0.42).These values are not statistically significant at the desired level. That means there are no differences between boys' and girls' scores in the study variables**.**

Table 10 presents mean differences between academic specialization (scientific and literary) in the variables of the present study as follows.

Table 10.
Mean Differences between Academic Specialization

Variables	Scientific Section		Literary Section		t - value
	M	SD	M	SD	
Creative Thinking	133.3	11.9	128	11.1	2.8
Critical Thinking	27.5	2.7	27.0	3.0	0.96
Emotional Intelligence	140.0	23.1	137.2	26.3	0.72

N = 75 Boys, 82 Girls, N of Students: in Scientific Section = 93, Literary Section= 64

Table 10 presents t-values for the differences in academic specialization between the scientific and literary section of the education system among the variables of the study; creative thinking (t =2.8), critical thinking (t = 0.9), and emotional intelligence (t = 0.7). These values are not statistically significant at the desired level. That means there are no differences between the scores of students (the total sample) according to academic specialization (scientific section and literary section)**.**

In order to observe the inter correlation among all the variables in the study, a 4x4 correlation matrix was computed for the total sample (N=157) in order to find out the relationship between creative thinking and the other variables. The correlation coefficients were sorted separately and are presented in Table 11.

Table 11.

Pearson's Coefficient of Correlation between Creative Thinking and Other Study Variables

Variables	1	2	3
Creative Thinking	-	.009	.287**
Critical Thinking		-	.234**
Emotional Intelligence			-

Note: ** P< .01, N=157

Table 11 presents the correlations between creative thinking and the other variables of the study for the total sample. Creative thinking was found to be positively and significantly correlated with emotional intelligence (r = 0.287, p<0.01), but was not found to be related with critical thinking (r = 0.009). Critical thinking was found to be positively and significantly correlated with emotional intelligence (r = 0.234, p <0.01).

To examine the effect of academic specialization (scientific or literary) and gender (males, females) on creative thinking among the total sample of the present study. I conducted ANOVA, whose effects are shown in Table 12.

Table 12.

Summary of ANOVA for the Effect of Academic Specialization and Gender on Creative Thinking

Source of Variance	SS	*Df*	MS	*F*
Academic Specialization (A)	1423.3	1	1423.3	10.9**
Gender (B)	976.9	1	976.9	7.4**
A X B	95.8	1	95.8	.73
Error	19936.3	153	130.3	
Total	2725203.0	157		
Corrected Total	22010.6	156		

Note: * *P* <0.001, N = 75 Boys, 82 Girls,**
N of Students in Scientific Section = 93, Literary Section= 64

As shown in Table 12, there is confident evidence that the academic specialization has a statistically significant effect on creative thinking (*F*= 10.9, *p*<0.001), as does gender (*F*= 7.4, *p*<0.001), but there is no statistically significant effect of their interaction together on creative thinking (*F*= 0.73).

Stepwise regression analysis was conducted to find out the best set of predictors of the total sample of creative thinking among the other study variables; critical thinking and emotional intelligence. In this study and the analysis, the dependent variable is creative thinking, whereas the remaining two variables were independent variables.

The independent variables were entered into the regression equation in order to predict creative thinking in the total sample. There are two sets of results from the general regression analysis; analysis of variance (ANOVA)and then stepwise regression analysis, which are presented in Tables 13 and 14below.

Table 13.

ANOVA for Creative Thinking among Study Variables

The Model	Sum of Squares	***Df***	Mean Square	***F***	***Sig***
Regression **(Emotional Intelligence)**	1813.697	**1**	1813.697	13.9***	0.001
Residual	20196.940	**155**	130.303	--	--
Total	22010.637	**156**	--	--	--

***Note*: *** P<0.001, N=157**

As shown in Table 13, there is confident evidence that emotional intelligence has a significant effect (p= 0.001 from the ANOVA *F*- statistic = 13.9) on creative thinking.

Table 14 presents the stepwise regression analysis results used to find out the best set of predictors of creative thinking of the total sample among the other study variables.

Table 14.

Summary of Stepwise Regression

Dependent Variable: Creative Thinking

Variable	**B**	**Beta**	**SE**	**t-value**	**R**	**Sig.**	**R^2**
Emotional Intelligence	.13	.28	.03	3.7	.28	0.001	.8

***Note*: *N* = 157, *** P<0.001**

Table 14 reveals that when the independent variables are entered in the regression model with creative thinking as a criterion for the total sample, the most important independent variable to a have an effect on creative thinking is emotional intelligence which alone contributed 8 per cent of the variance. The remaining variable was not considered to be an important predictor which is why it is not shown in Table 14.

To examine the effect of the project method theory of Kilpatrick in the area of scholastic agriculture on the study variables, t-test was used in order to detect the difference between pre and post scores of the tests for the study variables of creative thinking, critical thinking and emotional intelligence among the total sample.

Table 15 presents the mean differences between the scores, pre- and post administration for the total sample in the study variables as follows.

Table 15.

Mean Differences between Scores, Pre- and Post Administration

Variables	Pre-Administration		Post-Administration		t - Values
	M	SD	M	SD	
Creative Thinking	131.2	11.8	135.5	15.7	107.9***
Critical Thinking	27.3	2.9	28.2	2.5	136.3***
Emotional Intelligence	138.9	24.4	142.0	18.5	95.9***

***Note*: *N* = 157, *** p<0.001**

As shown in Table 15, there are statistically significant differences between the scores of the tests on the study variables pre- and post administration; creative thinking ($t = 107.9$, $p<0.001$), critical thinking ($t = 136.3$, $p<0.001$), and emotional intelligence ($t = 95.9$, $p<0.001$). That means there is a significant positive effect from applying and working with he project method theory of Dewey on the study variables.

CHAPTER 5

OVERVIEW OF DEMOGRAPHIC AND EDUCATIONAL ASPECTS OF THE STATE OF KUWAIT

Chapter 5

Overview of Demographic and Educational Aspects of the State of Kuwait

This chapter will provide indications of some demographic and educational aspects of the State of Kuwait, because some readers will lack background knowledge of Kuwait that would enable them to make various links and relations between these aspects and the results of this research. Some knowledge of Kuwait's environment is important, since the sample in the current research is from an Arab environment which has some different demographic and educational aspects compared with European environments.

5.1 Introduction

Location:

The State of Kuwait is located in the Middle East, in the northern part of the Arabian Peninsula (between latitudes 28°30' and 30°06' north of the equator and between longitudes 46° 30' and 48°30' east of Greenwich. It is bordered in the east by the Arabian Gulf, in the south and south-west by the Kingdom of Saudi Arabia, and in the north and north-west by Iraq. Kuwait has several islands, the biggest of which is Bobyan, and the smallest is Failaka, distinguished for its ancient monuments, and is relatively uninhabited (Ahmad, 2007).

Population

The population of the State of Kuwait is 2,595,628 (at August 2011) including 1,291,354 non-Kuwaiti persons. Kuwaitis make up less than half of the country's population and some estimates place the number of expatriates in the workforce at 80 per cent. At the same time a burgeoning young population is struggling to find employment. The government is looking at wider economic reform, including moving some of the 95 per cent of Kuwaitis who work in the state sector to the private sector (Ahmad, 2007).

Area

The total area of the State of Kuwait is 17,818 square kilometres, with a population density of about 139per square Kilometre (Hassan, 2008).

Weather

The weather of the State of Kuwait is tropical due to its location in the desert geographical region. The weather is distinguished with a long dry hot summer with temperatures reaching sometimes up to 50^{o}C in the shade and a short warm winter, mostly rainy (Ali, 2011).

Currency

The Kuwaiti Dinar (KWD) is the official currency of Kuwait. The KWD, which is divided into 100 units,was introduced to Kuwait in 1960 as a replacement for the Indian Rupee. The currency has maintained a very high exchange rate, making it one of the highest value currencies in the world (Economic Group, 2009). For instance, KWD 1 = USD 3.3, or CHF 3.29.

Ruling System

The regime is Emiri Democratic, where Kuwait is a state of sovereignty and has its own institutions, under the presidency of His Highness the Emir of the country. Laws of the State of Kuwait are passed by the State Council were known as 'National Assembly' composed of fifty members who are elected via democratic elections by the Kuwaiti people every four years.

Head of State

His Highness Sheikh Sabah Al-Ahmed Al-Sabah (Emir of the State of Kuwait) since 29 January 1996.

Crown Prince

His Highness Sheikh Nawaf Al-Sabah, since 20 February 1996.

Independence

19 June 1961 upon the cancellation of the protectorate treaty with the United Kingdom.

National Day

25 February, anniversary of inauguration of the late Sheikh Abdullah Al-Salem Al-Sabah in 1950, after the late Sheikh Ahmed Al-Jaber Al-Sabah.

Liberation Day

26 February, the date in 1991 when Kuwait was liberated from the invasion of the extinct Iraqi regime.

Judicial System

Civil law.

Religion

Islam is the official religion of the State. However, Christian nationals and expatriates enjoy full freedom to practise their religious rites.

Language

Arabic is the official language. English is widely spoken among most inhabitants. There is also few minorities who speaking Indian, French and German.

Governorates

Kuwait is administratively divided into six governorates; The Capital, Hawally, Mubarak Al-Kabeer, Al-Ahmadi, Al-Farwanyah and Al-Jahraa.

Natural Resources:

Oil, natural gas, fish and shrimp (Ahmad, 2007).

5.2 Historical Background

Since ancient times, Kuwait was never void of inhabitants. Buried monuments are revealed from time to time which provide us with material proof of the same. The name 'Kuwait' was known when Mohamed Bin Uraier (Emir of the Bani Khaled Tribe) ordered one of his assistants to build a 'Kuot' (an edifice) about 350 years ago, in order to use it as a store for weapons, ammunition and provisions whenever he wished to invade the tribes of Iraq or stay in the area of Kuwait. When bin Uraier saw the building which was smaller than he wanted, he reprimanded his assistant saying: 'I told you to build a *kuot* (edifice) and not a *kuwait* (small edifice)' (Hassan, 2008, p.15). The first rulers of Kuwait were the Al-Sabah Family, who are basically Otoob, dating back in origin to the Enza tribe, originally situated in the Najd area of

Saudi Arabia, starting with Sabah Bin Jaber or Sabah the First, who took over the rule in the middle of the eighteenth century. The common feature among immigrants to Kuwait is their longing for freedom. They established their new society based on this concept, which indeed became rooted in freedom as a concept, and even became one of the Kuwaiti characteristics. Kuwait has a harsh desert climate, which is not suited for agriculture, except for some small scattered oases. Therefore, Kuwaitis looked to the sea for living, where their ships sailed, and where they themselves dived for pearls. They travelled with their ships brimful of dates, rice, vegetables, grains, wood, textiles, and utensils, to East Africa, where they used to sell their cargo and return with different items. The ports of Basra and Aden, in India, and the east coast of Africa had knew the Kuwaiti ships, which were considered as their window to the outside world (Hassan, 2008).

Due to its distinguished location, Kuwait formed a point of commercial exchange among countries, where goods used to be received from Iraq and Syria, and be re-exported to countries of the East, and the east African coast. This was a spot light on the political, historical and commercial background of the State of Kuwait, which we believe we should highlight in order to stress the fact that Kuwait's glory dates back in history, and was made by sincere men, who introduced their sweat and blood to write its pages. Oil was first discovered in 1938, and the first shipment was exported in 1946. Oil discovery was not the first brick in Kuwait's economy. However, it came to complete and assist the long course of Kuwaiti people since their country was created about two hundred years before, i.e. the flow of petrol did not change the Kuwaiti style of life more than was required by the natural graduation of change of time (Economic Group, 2009). In view of this interlaced commercial past and present of the State of Kuwait, it was necessary to have rules and regulations to specify the basic systems for commercial business to run in conformity with the public interest of merchants and to regulate both their businesses and commercial relations.

5.3. History of Education

5.3. History of Education

At the beginning of the twentieth century, there was no formal educational system in place in Kuwait at all. There were a few Quranic schools, known as *Al-Katatib*, funded by the wealthy private citizens of Kuwait, that taught reading, writing and basic arithmetic. In 1912, the Al-

Mubarakiyya School was established as one of Kuwait's modern educational institutions. It was founded by merchants to train their clerks in commerce, arithmetic and letter-writing skills. In 1921, the Al-Ahmedia school was established, which offered English courses, and soon thereafter, an all-girls school was founded that provided education in Arabic, home economics and Islamic Studies. The government became involved in providing formal education in 1936, and by 1945 there were seventeen schools in Kuwait. With the increase in oil production and hence state revenues after World War II, the government began investing huge sums of money into social services, including education. By 1960, there were 45,000 students registered in Kuwait's educational system, including 18,000 girls (Ahmad, 2009).In 1965, following the introduction of the Constitution that made education a fundamental right of a citizen, education was made compulsory for children aged between 6 and 14. Since the early twenty-first century, the Ministry of Education has sought to prepare a general, long-term education strategy, focusing on educational teaching for the years up to 2025. This effort aims to align teaching methodologies with the current needs of an increasingly globalized world. The World Bank is conducting an analytical study in order to explore the various policy options required to implement this new strategy (Ahmad, 2009).

5.4. Present Education System

Today, Kuwait's education system is larger than ever. In 2011 there were 564,426 students registered in Kuwaiti schools, of which 370,989 were non-Kuwait students and 193,437 Kuwaiti. Many Kuwaitis choose not to send their children to government schools, but enrol them in private schools instead (Educational Statistical Group, 2011). There are numerous private schools in Kuwait, many of them have foreign sponsors and are co-educational. The Bayan Bilingual School, the American School of Kuwait, the American International School, the British School of Kuwait, and the French School are several of the many prestigious private schools available to the Kuwaiti population. Private education is not wholly funded by the government, although it is generously subsidized. The Kuwaiti government pours more than KD 5.6 million per annum into private educational facilities in addition to allotting land for school construction and distributing textbooks. Unlike the mostly co-ed private schools, Kuwaiti public schools are segregated by sex beginning in the first grade.

Women are granted the same rights to education as men and the Ministry of Education has worked to further the education of women through various programmes such as a 1989

initiative to establish daytime literacy clinics for women. The Kuwaiti government ensures that each new school contains a library and has expanded the collection of books in existing school libraries from 230,000 (before the Iraqi invasion) to more than 3 million today. The government has also launched an 'Education Net' project in order to connect every government school and library in Kuwait with a telecommunications data network (Educational Statistical Group, 2011).

There is a fairly wide choice of schools in Kuwait, although state (i.e. government-funded) schools are not usually an option for foreign children. These are attended by local and expatriate Arabs, who share culture, language and religion. The private sector provides for the expatriate communities, and its schools are generally of a reasonable standard, especially for elementary education. However, the secondary education of expatriate children is sometimes better provided for in their home country, where they may be sent to board.

The Ministry of Education controls standards in the state schools and has some influence over the establishment, legitimacy and running of those in the private sector, in some instances stipulating that school hours and days match those of the state schools (Fahad, 2008).

5.4.1.Educational Stages

Kuwait's Council of Ministers approved, in its session No. 4/824, the amendment of educational stages (4-4-4, elementary, intermediate, and secondary) for the three educational stages and established new educational stage, i.e. 5-4-3.

The previous educational stages (4-4-4) had been applied since 1956. The new educational stages shown in Table 16 have been applied starting from the school year 2005/2006 (Ahmad, 2009).

Table 16.
New Educational Stages of Schools in Kuwait

Stages / Years	Kindergarten		Elementary Stage					Intermediate Stage				Secondary Stage		
Age	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
Actual period	Two years		Five years					Four years				Three years		

The most important reasons for the change to the new educational stages (5-4-3) are:

i. Realize educational and learning harmony between development and modernization initiatives targeting all aspects of the educational process including study plans, curricula, books and new educational systems such as standardization of educational system in secondary stage, which is applied starting from the school year 2005/2006;

ii. The learner's development characteristics have been taken into consideration in different age categories, i.e. childhood stage, adolescence stage and youth stage, providing children in elementary stage with a learning environment consistent with late childhood that is often defined to range between six and eleven years. This phase has clear psychological, mental, physical and social development characteristics;

iii. Provide appropriate school environment for each development stage in terms of its curricula, facilities and scopes of activity assisting students in this stage with integrated comprehensive development without the suffering resulting in negative impacts on the child's psychological and physical health from moving to the intermediate stage at a younger age as it was in the previous educational stage (Jaber &Ahmad, 2007);

iv. Under the new educational stages (5-4-3), elementary stage pupils have the opportunity to gain command of basic learning skills in different study fields such as memorization skills, reading and writing skills, written and oral expression, working through consistent group and practice of a variety of social activities in harmony with their development stage. This provides students with opportunities for success in the intermediate stage;

v. An extra year was added to the obligatory education of elementary and intermediate stages to become nine years (five years in elementary stage and four years in intermediate stage) from eight years only in the previous stage;

vi. This new stage helps the student who completes the intermediate stage to select properly the type of secondary education that satisfies their tendencies and matches their abilities after becoming quite mature following nine years of education in elementary and intermediate stages. This protects students from failure that certain

students in the first secondary stage suffered under the previous system which represented in high failure rate and dropout from education at the beginning of secondary education. This constituted a waste of educational expenditure and a waste of human energy as a result of dropout and failure to complete secondary education;

vii. It provides a suitable opportunity for accommodating all output of the intermediate stage given several paths available in the secondary stage for academic education in parallel with another path, i.e. vocational and technical education. Therefore, all students can be qualified to continue their education, on the one hand, and ready to join the employment market for those so desiring, on the other hand, particularly since Kuwait lacks qualified national cadres in middle technical manpower; and

viii. Through this new stage, Kuwait has kept abreast with advanced educational systems at regional or international levels, which proved to be effective and successful in qualifying learners according to the requirements of societies in which the more advanced educational stages, i.e. 6-3-3 and 5-4-3, have been applied (Salem, 2009).

Educational systems around the world are continuously changing and developing backed by pedagogy and psychology, and supported by experience. Kuwait is in the process of comprehensive reform of its educational system in order to cope with globalization era and be open to all new developments the developing countries strive to adopt in order to retain their place in the course of civilization and advancement.

The Ministry prepared all requirements for applying this new educational stage, particularly new classrooms in the elementary schools to accommodate the fifth-grade students in the same building where they study; educational facilities necessary for this new development such as science labs and computers etc., and provision of teachers capable of desirable educational performance in view of this development; in addition, school books, teaching aids and technologies associated with the new curricula and new education stage.

All stages of state education, including higher education, are free. There are two main ministries involved in the development of the education sector: the Ministry of Education and the Ministry of Higher Education. There are about 1381 schools in Kuwait, at all stages from kindergarten to secondary; 422 boys' schools and 959 girls' schools. The total number of

students in the Al-Farwanyah Province is 71,39, and this is the province of the selected sample of current study (Education Statistical Group, 2012).

Two-thirds of all students (from kindergarten to secondary) were in public schools during the year ending 2010. Most Kuwaitis study in public schools. The private schools are split about equally between Arabic medium schools, which follow Kuwait's national curriculum, and foreign language schools, which follow other curricula (e.g., American, British, French and Indian). There are currently 591,359 students registered in Kuwait's schools, which make up approximately 25 percent of the entire population. Between 2006 and 2011 there was a substantial increase in the number of teachers, compared with the growth in student numbers, especially at the elementary stage. In the year ending 2011 there was an increase of 24 percent in elementary school teachers despite a decrease in student registrations. A large proportion of public school teachers are Kuwaiti females, particularly at the elementary stage. Only 4 percent of women teachers are older than 45 years, in comparison with 35 percent of non-Kuwaiti males (Education Statistical Group, 2011).

In the next part, I will present details of the educational stages.

5.4.1.1. Kindergarten and Elementary Stage

In Kuwait, schooling usually begins at the age of six. Kindergarten (pre-school) education is also available to children from four to six years. Under the new system, elementary education will begin at the age of five years.

There is the option at this stage of attending one of the private schools, which have foreign sponsors and mostly offer co-education, whereas the Kuwaiti public schools are segregated by gender starting at the elementary stage. Examples of private foreign schools in Kuwait are the Bayan Bilingual School, the American School of Kuwait, the New English School (Kuwait), the American International School of Kuwait, the Kuwait English School, the French School and the Canadian School of Kuwait (CSK). Most of the private schools are subsidized by the state.

In 2009, the elementary gross registration rate was 98.5 percent. The gender parity index, which is the ratio of female registration to male registration, was 0.98. This shows parity in gender for enrolmentat elementary stage. The percentage of Kuwaitis studying in private schools in kindergarten is 20 percent. The Kuwaiti government puts about KD 5.6 million per annum into private educational facilities, in addition to allocating land for school construction

and paying for the distribution of books. The Kuwait government also ensures that each school is equipped with a library. The government is promoting the use of information technology at school stage. The launch of the 'Education Net' project is a manifestation of that, as it connects every government school and library in Kuwait with a telecommunications data network (Alya, 2010).

5.4.1.2. Intermediate and Secondary Stages

Students are required to spend four years at the intermediate stage, up to grade 9, after which they move on to the secondary stage. Secondary education is for three years, after which students can take the higher education track by entering university or gaining admission into a vocational college to study for technical or vocational qualifications. The secondary education system is being standardized from the present academic and credit system to a single system. The application of this new organization started during the academic year 2005/06. Moreover, the percentage of Kuwaiti nationals in private schools at the secondary stage is between 8 and 12 percent. Registration rates at the secondary stage have been rising since 2000, except for the period 2005/06, when the education stages system changed from four years at each education stage to 5-4-3 years. Today, the Ministry of Education is improving the quality of the education system. Girls outperform boys in every subject of the twelfth-grade examinations, particularly in philosophy, English, Arabic languages, chemistry, physics, mathematics and biology. International indicators such as the trends in international mathematics and science study and progress in international reading literacy study are not very encouraging. Special attention is being given to reducing repetition and dropout rates (Kuwait Education Indicators Report, 2007). The Ministry of Education in Kuwait is also trying to adopt the use of information technology (ICT) in schools by including e-learning in the curriculum. In Kuwait there are also religious institutes which offer a programme of general education at the intermediate and secondary stages. There were 1226 students in the seven religious centres in 2009/2010, of which 75 percent were Kuwaiti nationals. The Ministry of Education in Kuwait is making efforts to provide equal educational opportunities by opening special needs institutes. In total there are 44 special needs schools out of which 33 are public schools and 11 are private schools. Some of the special needs children are also registered in special needs classes offered in general schools (Alya, 2010).

5.4.2. Vocational, Post-Secondary and Tertiary Education

Post-secondary education includes technical and vocational courses offered by the Public

Authority for Applied Education and Training(PAAET), a state institution, and degree programmes offered by Kuwait University, and a small number of private universities (Educational Statistical Group, 2011). The Government of Kuwait is encouraging its citizens to take vocational training programmes in order to fulfil the demand for a skilled workforce. Students registering for vocational training at PAAET can join programmes after elementary, intermediate or secondary school, although the majority of students, about 70 percent, are registered having completed secondary education. In 2009/10 there were 14,285 students registered in post-secondary training courses, of which 62 percent were female. The total number of students in vocational training at PAAET increased by 8 percent from the previous year. The male enrolment decreased by 10 percent whereas the female enrollment increased by 42 percent. This substantial increase was due to the introduction of new vocational programmes in line with the demands of the female students. Post-secondary education includes courses at a PAAET technical college lasting for two and a half years, following which the students receive a certificate that is less than a tertiary diploma, but does allow the graduates to enter the workforce (Alya, 2010).

5.4.3. Higher Education

There are four state-supported higher education institutions in Kuwait:

i. Kuwait University;
ii. The College of Basic Education in PAAET;
iii. Higher Institute for Theatre Arts and Music Arts; and
iv. Other Institutions.

In the academic year 2009/2010, the total registration within these institutions reached 29,308 students, an increase of 7 percent from the previous year. The proportion of females in the undergraduate studies is 70 percent. The gross registration ratio in tertiary education in both private and public institutions in 2006 was about 18 percent; the male gross registration ratio was 11 percent, a slight increase from the previous year, and for females it was 26 percent, a three percentage point decrease from the previous year (Mohammad, 2011).

5.4.3.1. Kuwait University

Kuwait has only one state university, which is called Kuwait University. The Kuwaiti government provides several scholarship schemes for its nationals, either through Kuwait

University, the Ministry of Higher Education, or Kuwait Institute for Scientific Research. Hence, although it is a small country, it has a big proportion of its students to travel abroad for their higher studies, firstly because they can afford to do so and secondly in order to benefit from the higher status and the prestige of overseas qualifications. Hence many students are sent to other countries such as Australia, Canada, USA, France, and Switzerland...etc. Kuwait University was established in 1966. It is a co-educational institution and which includes five campuses in. The number of students has increased considerably, from 400 at its inception to 22,919 in 2009/2010. It offers a wide range of academic courses (Salem, 2011).

5.4.3.2. The College of Basic Education in PAAET

The Public Authority for Applied Education and Training was established in 1982 to fill the need for a vocational and technical training institution. PAAET has two missions: PAAET is responsible for providing and developing the skills of the national labour force in order to meet the demands of a developing nation, and it provides training to students to have careers beyond the oil industry. The College of Basic Education in PAAET, with an enrolment of 7132, enjoyed an increase of 26 percent from the previous year.

5.4.3.3. Higher Institute for Theatre Arts and Music Arts

With a total registration of 765 students in 2010, this represents a decline of 25 percent from 2009 (Rashed, 2010).

5.4.3.4. Other Institutions

There are also a number of post-secondary institutions in Kuwait that are approved by the Ministry of Higher Education:

i. Gulf University for Science and Technology;
ii. Arab Open University;
iii. Australian College of Kuwait;
iv. American University of Kuwait;
v. Gulf American College;
vi. Kuwait-Maastricht Business School;
vii. Box-Hill College Kuwait; and
viii. American University in the Middle East.

The largest private institution for undergraduate studies is the Arab Open University, which had 7294 students in 2011 and which accounts for nearly 60 percent of all private undergraduate

students. Kuwaiti students make up 53 percent of all undergraduate registration in private institutions (Mohammad, 2011).

5.5. Objectives of Education

Since the present study sample includes students from the secondary school stage in the State of Kuwait, it is important to provide an overview of the nature of this stage including educational objectives and philosophy crystallizing many educational themes relating to different development growth in the sample of the present study. Light will be shed also on many educational themes relating to the nature of scholastic activities and educational programmes and projects in the State of Kuwait. This is because the present study is based on two primary themes, namely: secondary students and the nature of educational activities and projects on which this study focuses to ultimately reach the importance and benefit of scholastic activity and project adopted by the researcher, i.e. a scholastic project in the field of agriculture.

Therefore, the Kuwait Ministry of Education developed a document on secondary education in the school year 2009/2010 (Ahmad, 2010), which included many administrative, technical and assessment aspects in connection with secondary education students. Hence, the scientific and technological challenges of the era, the importance of diagnosis, analysis of real problems and forward-looking outlook of their reflections in our fast changing world imposed a requirement for serious examination of the current educational system in Kuwait. It is necessary to adopt a thoroughly developed educational system keeping pace with today's human advancement that is capable of facing future challenges that rely on normal individuals with physical, mental, psychological and moral integration as stated in the overall goal of education in State of Kuwait.

With honest determination, Ministry of Education leaders have striven for years to adopt an educational system based on three educational stages with a five-year system for the elementary stage, four-year system for the intermediate stage and three-year system for the secondary stage (5-4-3). This system has the potentials and flexibility enabling it to face the challenges of the era, motivate the abilities of youth with characteristic of growth, and stimulate their minds and creativity. The educational system is provided with Kuwaiti societal values, proud of its deep-rooted past achievements, advancing from its brilliant present to promising future, boasting its Gulf and Arabian origin and communicating with and open to the surrounding world.

Therefore, advancement in developing the learner's personality is a basic requirement in the State of Kuwait; aspiration to maximize its potential and excellent capabilities. The only way to attain this objective is to prepare thinking, researching, analytical, interactive and participating citizens free from anxiety, negativism and prejudice.

5.5.1. The Inclusive Objective of Education5.5.1.The Inclusive Objective of Education

Education has become and will remain an integral part of the entity of Kuwaiti citizen who strives to actualize him or herself as a human being and has the right to be provided with the opportunity to do so. Such education objectives and results should correlate with society's requirements in order to ensure effectiveness in realizing advancement and welfare for the society in line with the nature of the society and the era, learners' development requirements and characteristics, contemporary educational trends and the findings of scientific studies and sustainable education within a framework of commitment to originality, adoption of technology, diversification of approaches and prioritization to reach the best pattern. The overall objective of education in the State of Kuwait can be achieved, which is:

Provide suitable opportunities to help individuals attain comprehensively integrated spiritual, moral, thinking, social and physical growth to maximum extend of their potentials and abilities in view of Kuwaiti society's nature, philosophy and expectations, and in light of the principles of Arabian heritage and contemporary culture which ensuring balance between individuals' self-actualization and preparing them for constructive participation in the advancement of Kuwaiti society in particular and the Arab and global communities in general.(Salem, 2009, p. 6).

5.5.2. Overall Objectives of Education

First: Objectives relating to the nature of Kuwaiti society:

i. Belief in the principles of Islam whereby such principles become an intellectual approach and lifestyle embodied in individuals' behaviour and social relationships;

ii. Familiarity with Arab and Islamic heritage, its social traditions and work on enhancing

the same;

iii. Recognition of history and development of Kuwaiti society, its heritage and characteristics of social life;

iv. Promoting the individuals' feeling of affiliation and pride in their homeland of Kuwait, the Arab world and the Islamic world;

v. Strengthening links of solidarity, brotherhood and united family spirit among citizens and get rid of any sectarian, original, tribal or class oriented fanaticism;

vi. Preparing individuals for effective life in a society founded on consultation, democracy, emphasis of individual's freedom and dignity, attention to public issues, independent opinion, freedom of expression, respect of opposing opinion, compliance with the group opinion and practice of social work skills; and

vii. Preparing individuals who know their rights and duties (Salem, 2009).

Second: Objectives relating to the nature of the era:

Support for studying modern scientific fields and applications thereof making individuals able to recognize manifestations of scientific advancement around them and benefit from instruments and tools provided by modern technology;

i. Develop citizens' awareness to protect themselves against the effects of propaganda that sometimes attempts to subject people to private interests;

ii. Emphasize the link between theory and application, and between knowledge and practice;

iii. Provide techniques that help individuals quickly adapt to rapid social change;

iv. Care for maintaining balance between spiritual and material values; and

v. Realize in-depth and comprehensive approach in preparing the individuals for life (Salem, 2009).

Third: Objectives relating to learners' growth requirements and characteristics:

i. Assisting individuals with sound spiritual development and refining their behaviour by adhering to morals called for by Islam;

ii. Assisting individuals with sound mental development;

iii. Assisting individuals with sound physical development;

iv. Providing individuals with opportunities ensuring their sound emotional maturity;

v. Developing aesthetic appreciation and artistic expression whereby individuals feel manifestations of beauty around them, enjoy and express the same;

vi. Preparing individuals for successful for family life and facing demographic problems;

vii. Pay attention to vocational education and requirements of study and vocational guide;

viii. Enhancing individuals' ability to think in a scientific method and act according to requirements of accurate observation, investigation, objectivity and reliance on convincing evidence and conclusive proof in adopting an opinion;

ix. Enhancing individuals' ability of creativity, innovation and modernization;

x. Promoting levels of ambition with individuals and provide them with opportunities to attain their maximum achievable potentials and talents to realize benefits for them and the society;

xi. Sponsoring talents and gifted students in all fields to prepare leaders capable of creating advancement in the society;

xii. Sponsoring physically and mentally handicapped students and developing appropriate programmes to meet their needs, solve their problems and convert them into effective power contributing to building the country;

xiii. Bringing up generations that are able to assume responsibility in different forms and aspects, and encourage individuals to take initiative, make decisions in their own,

plan for their future and rely on their own efforts and work results;

xiv. Providing opportunities for preparing individuals capable of assuming facing change and development responsibility and rejecting all manifestations of backwardness and narrow-mindedness;

xv. Satisfying the needs of Kuwaiti society for qualified manpower to meet the requirements of development in various sectors;

xvi. Preparing individuals for employment and relevant trends towards appreciation of work and working people;

xvii. Urging individuals to contribute time, effort and money to serving the community and working on its advancement; and

xviii. Familiarity with the potentials and material and human capacities of the Arab world as a step towards achieving integration, cooperation and solidarity throughout the Arab world (Yakoub, Soad, &Rshid, 1991).

Fourth: Objectives relating to contemporary educational trends:

i. Materialize individual's positivity and activeness;

ii. Enhance ability to practise self-learning;

iii. Assist individuals to practise ongoing learning throughout the life; and

iv. Benefit from up-to-date technologies in the education field (Yakoub, Soad,& Rshid, 1991).

Thus, I will present certain dimensions and themes with relating to the secondary schools in the State of Kuwait as follows:

5.6. Dimensions of Secondary Stage of Education5.6. Dimensions of Secondary Stage of Education

The secondary stage is considered a distinct age phase of learners' growth. Moreover, adolescence is a stage of rapid successive physical and sexual changes that stimulate needs, motivate emotions, promote values and trends, reveal abilities, potentials and preparedness, and crystallize tendencies and skills. It is a stage where the desire for independence mixes with the need for reliance on parents. The adolescent has changed emotions including calmness and

excitement, cooperation and indifference, and optimism and despair. Adolescent behaviour combines childhood experiences and adulthood expectations. Accordingly the secondary stage in general educational stages has vitally primary responsibilities in terms of satisfaction of learners' needs in one of their most important life stages, on the one hand, and at the same time preparing them to pursue their education or fulfil the society's needs for a labour force on the other hand (Salem, 2011).

5.6.1.The Inclusive Objective of Secondary Stage of Education

Provide secondary school students with the best learning opportunities which can be made available by up-to-date knowledge and culture and help them develop their abilities along with achieving balance in multiple paths; respect the learner's mentality in their tendencies and preferences; and prepare them for life or early career. The overall objective of secondary stage is briefly to provide learners with necessary experience and skills for creating Kuwaiti society's structure as a rapidly growing and changing developing community; and prepare the students of this stage, by virtue of its nature and position in the educational system, in order to continue their education in universities and high institutes or satisfy career requirements (Jasem, 1986).

5.6.2. Philosophy of Secondary Stage of Education

The secondary school is required to provide an appropriately flexible environment for the learner's sound development given the fact that it is the educational institution to which society has assigned the mission to prepare generations for participation in society's developmental progress in the manner it deems fit, consents and adopts. Therefore, the secondary school's mission is to produce systematic influence on its students' behaviour and prepare them socially and psychologically for positive and effective participation in the society's advancement. Hence, this educational stage is very critical because it is a stage of grading and transition between the basic education stage and other stages including university or higher education or involvement in life experiences and career. Thus, the real challenge is the attempt to find a fully integrated picture of what secondary education should be in order that it can achieve desirable objectives thereof. The source of such challenge is the multiple factors affecting this education which include economic, social, cultural or other factors. The challenge also lies in the overlap

and correlation of such factors as well as the need to take them into consideration upon undertaking any development. Based on the proposed visualization of the secondary education structure for its academic and technical vocational paths and in view of the new educational stage (5-4-3, elementary, intermediate, and secondary) adopted by Supreme Education Council, the new secondary education philosophy and objectives can be expressed as follows:

The educational philosophy of the new secondary education is founded on a base of thought and experiences that govern the state of affairs and practices in the field and hence standards are derived from the same in order to make the choice and preference from among proposed alternatives for developing this system towards the future envisioned by Kuwait for its future generations. Such development should consider local circumstances and international experiences that are in harmony with Kuwaiti society and recognize its cultural uniqueness along with response to call for education science development and skills required for employment market as appropriate for needs of successive generations flowing in population growth for which the State is committed to provide education to individuals as stated in its Constitution (Jaber& Ahmad, 2007).

Therefore, the key fundamentals of educational philosophy from which educational objectives in general and secondary stage objectives are derived which can be summarized as follows:

i. Arabism with its heritage, contemporary issues, expectations and trends towards the future;

ii. Integration of social and economic policies and development requirements;

iii. The era's present and future trends and requirements in conformity with Arab culture principles as well as identity preservation; and

iv. Individuals' needs and development characteristics

Hence, the formulation of a specific clear-cut educational philosophy does not go beyond general principles prevailing in the country. This should be translated in the young people's behaviour expressing such general principles along with giving priority in such philosophy to actual practice in the society and focusing on performance restrictions that hinder development

thrust and keeping up with requirements of a new world. This requires the academic path philosophy of secondary education system, in view of the above fundamentals, to be based on the following key directions:

i. Arabism and Kuwaiti and Gulf Identity

Kuwaitis are proud of their historical, linguistic and civilization affiliation to the Arab nation and are keen on having links with its people and joint cooperation among their countries for the mutual benefit of their communities and human communities in general.

ii. Openness to Cultures and Communication with the World

The function of the education system is to create a personality who is open to world cultures and tolerant with and accepting others as they are so that individuals can positively interact in today's world in which each part is interdependent on the other. There is no place in today's world for those who do not accept others and positively deal them without being separated from their origins or abandoning their identity.

iii. School is an Educational Incubator that Enhances Unity and Solidarity

The nation's unity, the solidarity of its individuals and intimacy among its members stem and thrive from the society's rejection of all forms of fanaticism and bias. This relationship is confirmed by the Kuwait's Constitution. This trend and deep-rooted belief in it is the responsibility of education incubators and institutions such as the family, clubs and different mass media along with providing means of prudent effective practices. In addition, focus should be placed on enhancing unity and solidarity in handling and presenting aspects of knowledge, values, concepts and theories with their applications and forms of actual usage in real life (Khaled, 2008).

Furthermore, for educational institutions, the principle of equity is no longer limited to mere equal opportunities in joining education; rather it extends to equal opportunities to actually benefit from education and pass its stages. This requires the educational institution to provide flexible education appropriate for an individual according to their abilities and potential; to consider individual differences; provide complete care to people with special needs; and to create new flexible and continuous opportunities for learning and self-learning.

iv. Educational System and Building a Constantly Changing Society

The most prominent fundamentals of the educational system philosophy include communication with the society's heritage and civilization. Fields of scholastic schedule translating these trends are rich life that combines education, recreation and positive interaction that realize the target development of individual capitalizing on potentials and promoting skills that go beyond scholastic curriculum or constitute its contents. Since the student is the focal point of scholastic system, they should contribute to school management to be trained in assuming responsibility

and recognize consequences thereof. Furthermore, educational guide and direction are vital for the educational system and safe tackling of problems in early stage, which may be faced by a learner. In addition, availability of services, aids and facilities allows guiding students as per their abilities and academic tendencies on scientific foundations and enables them to select appropriate courses and curricula. Since education is a practical environment for creating necessary values, trends, skills and insights for establishing the relationship between man and their natural surroundings, then formulation of behavioural pattern considering the environment importance and sense of individual responsibility towards it confirms the requirement for working on making it a supplementary element of all school courses; each as per its nature and relevant relationship with the environment.

V. Compliance with Education Quality Control Standards, Preparation for Career and Ability for Adaptation

Community developmental education is based on providing a suitable cultural, educational and economic atmosphere for creation and advancement. This imposes increasing responsibilities for growth of knowledge and skills in order to achieve education that includes employment and development of technologies and benefits from information in promoting knowledge and skills. To achieve distinct education and curricula containing technologies, renovations and communication means, quality control techniques in educational process must be developed and adhered to whether in the selection criteria for teacher and performance appraisal or standards for selection of educational supervisors and inspectors (Fahad, 2008).

vi. Shifting from Revenue Based State Economy to Production Based State

The world is currently passing through a stage of economic recession, shortage in materials and aggravation of unemployment that has left its impacts on the whole world and Kuwait is a part thereof. Kuwait has been adversely affected by such recession and the effects thereof, especially due to the overall destruction of the utilities infrastructure that caused by the malicious Iraqi invasion.

The society's institutions in general and the educational institutions in particular are responsible for satisfying the requirements of such change and translating it into a comprehensive plan and educational programme to be directed towards focusing on building the learner's personality to deepen excellent performance and reach a level of adequacy that can be achieved by combining skill acquisition through prequalification and training; and acquisition of social behaviour.

vii. Enhancement of Teacher's Role and Success of Educational Reform are Society's Responsibility, not the Educational Institution Alone

The teacher is a key instrumental medium that the society and educational system entrust with the responsibility for implementing the overall objectives of education in the society. In view of this vision, the teacher is required to prepare and educate a new quality of learners who possess not only knowledge and tools but also have the ability to continue learning throughout life span. The teacher leads such change, provides appropriate opportunities, enriches outcomes thereof and presents a good example in scientific thinking and moral behaviour. The requirement for promotion teacher's level in terms of prequalification, work and performance in learning setting which is based on the principle that no educational learning system can progress to a higher level than the teachers in such system, i.e. improvement in learner's performance lies in the advancement of teacher quality (Jmilah, Safa, & Mariam, 2008).

5.6.3. Education System of Secondary Stage of School

Secondary education in State of Kuwait includes three years of study, which a student must pass to graduate and pursue further study. In the second year of secondary education, a student selects science or literary majors. In view of such selection, the student shall study scientific or literary subject, so they can complete their university education that will involve science or humanities departments (Jasem, 1986).

5.6.4. Objectives of Secondary Stage of Education

These objectives are a set of general principles that express Kuwaiti society's ambitions and expectations from the secondary education stage. They serve as general guides for educational action in this stage:

i. Build a personality capable of facing the future along with emphasizing national and Arabic cultural identity without fanaticism;

ii. Prepare a student capable of innovation, creativity and analysis by providing them with necessary thinking and mental skills for self-learning process;

iii. Deeply implant religious and behavioural values in students' souls, detect their tendencies, abilities and skills, and strive to develop the same;

iv. Prepare the student to pursue higher and university education to achieve comprehensive development;

v. Support superior students and provide talented students with opportunity to refine their talents and develop abilities;

vi. Ensure that students acquire practical human concepts to exploit the same for serving the society;

vii. Promote appreciation of responsibility and ensure that students recognize their rights and obligations;

viii. Develop special skills, tendencies and abilities along with letting students gain sense of artistic appreciation; and

Ix. Familiarize with society's needs and prepare a generation that effectively contributes for advancing and developing the society (Ebrahim, 2010).

To achieve these objectives, the secondary stage should provide learners with the following abilities and skills:

To achieve these objectives, the secondary stage should provide learners with the following

abilities and skills

i. High ability of oral and written expression, and interpersonal skills;

ii. Command of Arabic language, literature and social science, in particular those assisting students with understanding their surrounding world and how to develop it;

iii. Command of mathematics and ability to use and apply it in various daily life requirements;

iv. Command of natural sciences and knowledge of the relation of such sciences with the student's surrounding environment;

v. Command of at least one foreign language to provide them with opportunity to know the other's culture;

vi. Command of computer and IT techniques; and

vii. Ability to identify and analyse problems, and look for innovative and creative solutions.

In general, such objectives should express measurable educational results and output such as:

i. Ability to employ information in student's life, solving their problems, developing their environment and addressing their issues;

ii. Thinking methodology and follow scientific thinking approach;

iii. Gain command of self-learning techniques, ability to refer to sources of knowledge and benefit from the same;

iv. Ability to make informed decision based on well documented information and consider objectivity therein;

v. Ability to deal with modern technologies through using suitable ones and awareness of maintenance and development thereof; and

vi. Scientific ability of analysis, interpretation and forecasting (Khalaf, 2010).

5.7. Dimensions of Scholastic Activities and Projects

The concept and philosophy of scholastic activities is related to a modern progressive

philosophy that believes we live in a constantly changing society; and human development takes place as a result of interaction with the surrounding environment in which we live; and that our experiences acquired in different development stages are formed in an integrated manner in physical, mental, social and spiritual aspects through our physical and mental activities.

5.7.1. Concept of Scholastic Activities

Scholastic activities mean programmes, activities and projects that focus on learners and their mental and physical efforts in practising types of activities or projects which suit their abilities, tendencies and interests inside and outside school. This assists with enriching experiences and acquiring certain skills and desirable traits that lead to development of the learner's personality from all.

There are certain educational facts that we should present in connection with scholastic activities, programmes and initiatives as shown below:

i. Scholastic activities and projects are a basic part of the concept of comprehensive educational approach in the State of Kuwait (subjects, educational objectives, educational trends, educational philosophy, activities and aids, assessment);

ii. Scholastic activities and projects are a set of programmes, techniques and practices implemented through a codified plan under the school's supervision and guidance with student participation, as such they integrate with the school curriculum;

iii. Scholastic activities and projects vary in terms of degree, quantity and quality as appropriate for individual differences; and

iv. Scholastic activities and projects, and practice thereof, are not limited to place or time and thus, they are fully flexible in practice inside or outside the daily classroom or even outside the school (Barrak, 2001).

5.7.2. Relationship between Scholastic Activities and Projects with General Education Strategy

Strategy is a primary concept at the present time, which is highly associated with scientific and technological advancement that significantly facilitates the process of induction and understanding of the future through a set of future plans and reform initiatives in different fields of life in order to tackle future growth and develop proposed solutions for all future problems by a group of specialists who assimilated and understood contemporary issues and fields, and linked the same with future developmental plans.

Therefore, in 1998, Ministry of Education at State of Kuwait developed a general future strategy (Abdulah, 1998) in order to develop and reform our education system in schools for different basic elements that including general visions, missions, goals, and support for scholastic activities with projects and objectives, in addition to the reference which it proceeded, where such strategy extends up to 2025. This document also confirms the function of the strategy as a general framework concerning the educational system course meeting the needs of society with its different institutions and segments. The strategy focuses on determining the course of action to produce change in the general education system. It is a general educational vision for the future envisioning its dimensions, horizons and challenges; and embracing the heritage and its fundamentals as well as the reality and its problems. So there is a set of key aspects relating to the strategy and paving the way for assimilating assumptions thereof, namely:

i. Key issues addressed by the general education strategy;
ii. The function of general education strategy;
iii. The components of general education strategy;
iv. Reference framework of general education strategy;
v. Vision and mission of general education strategy; and
vi. General policy of general education strategy.

The third aspect represented in the components of general education strategy includes four

themes, namely:

i. Strategic vision of general education system;

ii. Strategic mission of general education system;

iii. Strategic goals of general education system; and

iv. Strategic objectives of general education system.

It concentrates on the strategic objectives of general education system and indicates scholastic activities and projects with all the contents, values and significances of this educational term that has great importance and reflection on learners. The following are among such objectives:

i. It is important to motivate both government and private schools for diversification and creativity in study systems, techniques, courses, activities and projects providing multiple opportunities to learners and society;

ii. Activate the role of scientific programmes targeting superior students through supporting public schools financially to introduce such scholastic programmes and projects;

iii. Encourage diversification of study as per students' academic and vocational tendencies;

iv. Provide opportunity to benefit from the largest possible number of education sources and scholastic activities and projects;

v. Encourage free scientific thinking and develop skills of sound thinking and creative thinking;

vi. Contribute to emphasizing values of belief in the importance of dialogue and respect of human rights and providing the basis of sound democratic life; and

vii. Promote learners' positive traits towards group work and implant the spirit of initiative.

Therefore, we conclude that the general education strategy of the State of Kuwait indicated, among its objectives, the role and importance of scholastic activities and projects, and their impact on learners, on the one hand, and the behavioural, educational, learning and psychological objectives that can be achieved through applications of scholastic activities, on

the other hand (Abdulah, 1998).

It is important to review the overall educational framework encompassing the objectives of scholastic programmes and projects, i.e. the conditions for good objectives of any scholastic project, as a scholastic project is merely an important aspect of the educational programme.

Important conditions for good and suitable objectives of a scholastic project programme can be summarized as follows:

i. Objectives shall be based on sound and easy-to-apply educational and psychological philosophy;

ii. Objectives shall be free of contradiction with each other;

iii. Objectives shall have clear meaning in order not to incite many interpretations and constructions;

iv. Objectives shall be easily translated into behaviour;

v. Objectives shall be appropriate for students' level and the school's function;

vi. Objectives shall be in a comprehensive balanced group such that they supplement each other and no objective would be achieved on the expense of another;

vii. Objectives shall be divided and classified in a manner facilitating reference thereto and benefit from the same; and

viii. Objectives shall be achievable and suitable for human and material circumstances and capacities (Khaled, 2008; Barrak, 2001).

To benefit from these objectives, all staff involved in education and the public should be made aware of their importance and work should be coordinated among all education media (family, school and society). Therefore, upon designing the overall objectives of scholastic activities, it was taken into consideration that they shall be changeable and amendable because they are established to express the society's conditions, requirements and plan in development; and keeping pace with the era's goals, circumstances and requirements including scientific and technological advancement, development in telecommunication means, expansion of cultural

fields, civilization contact processes and modern globalization.

Since different objectives and projects of scholastic activities are overlapping, interactive and integrated, it is difficult to separate them because their major goal and educational pivot is focused on the learner's personality, which is not divisible due to its physiological nature and various effects.

5.7.3. General Criteria and Working Principles of Scholastic Activities and Projects

The basic objective of education is to modify individual's behaviour according. Such modification mainly depends on the extent of tendencies, trends and values acquired by the student. They can not acquire any of these except through activity and practice. So the scholastic activities and projects programme is a set of steps undertaken by the school management with teachers supervising scholastic programmes in addition to the students, in

order to implement a specific activity project, which is related to its objectives and has clear technique and path towards achieving such objectives and responding to applications thereof. Therefore, the following aspects shall be taken into consideration during planning the group's programmes:

i. Determine material, human and spatial capabilities and aspects of finance and spending;

ii. Train students in work planning and organization, responsibility determination and training in leadership, where the teacher serves as guide and facilitator of appropriate conditions for students to become active and participate in achieving desirable educational objectives through educational activities and projects;

iii. Provide different scholastic activities that consider individual differences among students;

iv. Benefit from all available experiences and potentials across the school or local level;

v. Scholastic activities and projects shall contribute to achieve correlation of school

subjects and integration student's learning experiences in a practical manner. Scholastic activity should be related to social life in order to strengthen connection and cooperation between family, school and society through implementing environment service programmes to ensure that students gain many positive customs and values that are pertaining to cooperative group work;

vi. Each student in a school should participate at least in one or more activity categories that are appropriate for their tendencies and desires. The same applies to school projects; and

vii. Teachers shall supervise school groups. This is a core part of their educational duties (Al-Sherida& Ali, 2001).

5.7.4. Programmes and Groups of Scholastic Activities and Projects in Schools

Student groups should be formed in each school and stage where each group will implement specific scholastic activity or project individually or collectively under the supervision of specialized teachers as per the nature and dimensions of each activity. Scholastic activities cover the following:

First: Scientific Activity

Definition:

Activities that develop research spirit in students; train them in scientific thinking approach and patterns of scientific and applied behaviour; and assist them with innovation.

irst: Scientific Activity

Objectives:

i. Promote students' scientific research spirit and occupy spare time with useful activities;

ii. Develop students' creativity and innovation ability;

iii. Link theoretical scientific study with hands-on experimental reality;

iv. Promote manual skills through making and developing simple scientific devices;

v. Enhance attitude to importance of the environment, utilization of its resources, benefit from the same and solving its problems;

vi. Train in scientific method in thinking;

vii. Train in maintenance of instruments and safety and security rules;

viii. Familiarize with importance of agriculture as source of food and aesthetic appreciation; and

Types of Scientific Activity (for instance):

1. Scientific competitions	2. Scientific experiments	3. Young scientists
4. Science club	5. Agriculture	6. Research
7. Environment	8. Health awareness	9. Meteorology
10. Data entry	11. Photoshop software	12. Apiculture
13. Web design	14. Computer programming	15. Mathematics

Second: Cultural Activity
Definition:

Activity intended to promote students' knowledge and information and expand their insights and to drive them for literary, intellectual and artistic innovation.

Objectives:

i. Familiarize students with different knowledge sources and provide opportunity to benefit from the same;

ii. Create positive attitude towards interest in knowledge, reading and research;

iii. Allow students to gain diversified experiences through attending seminars and lectures;

iv. Train in discussion methods and good listening;

v. Develop expression talents in story and poetry;

vi. Familiarize students with the work of different professions assisting them to determine their future careers; and

vii. Familiarize students with the problems of local, Arabic and global society (Salem, 2009).

Types of Cultural Activity (for instance):

1. Library	2. Handwriting improvement	3. Folklore heritage
4. Poetry	5. Media	6. School radio
7. School press	8. Oratory	9. Discussion & dialogu
10. Shows and film	11. Short story writing (Yousef, 2009)	

Third: Social Activity

Definition:

Activity that achieves integrated education because it involves diverse programmes through which students practise their hobbies and activities according to their individual desires and tendencies. This will have impact on their social formation, which is the pivot of the educational process.

Objectives:

i. Train students in dealing with others to create sound social relationships;

ii. Awaken students' desire for cooperative works and accustom them to group work;

iii. Bring up students for discipline respect and responsibility appreciation;

iv. Accustom students to favourable social traditions such as punctuality and polite conversation;

v. Deepen concept of voluntary work with students;

vi. Deepen students' patriotism and affiliation through encouraging visits and trips to archaeological and heritagesites; and

Familiarize students with different aspects of the renaissance in Kuwait through organizing various visits and trips.

Types of Social Activity (for instance):

1. Organization of exhibits and parties
2. Public relations
3. Cooperative activity
4. Discipline
5. First aids
6. Trips and visits
7. Police friends
8. Voluntary activity
9. Social service groups
10. Traffic awareness
11. Human rights

Fourth: Art Activities

Definition:

Activities that provide students with opportunity to practise musical arts including playing instruments, performance, chants, etc., plastic arts such as painting, photography, graphic design, sculpture, and dramatic arts including diction, acting and preparation.

Objectives:

i. Provide talented students with opportunity in artistic aspects, e.g. painting, to practise art activity that satisfies and refines their hobbies;

ii. Develop appreciation of beauty and ability in innovation;

iii. Allow students to gain necessary skills for assuming responsibility;

iv. Train in working in a team, form sociable personality and strengthen links among classmates and relationship between teacher and students;

v. Create music appreciation and become accustomed to listening to good music;

vi. Familiarize with theatre, its components, school radio and its instruments;

vii. Become accustomed to facing and talking to an audience with no fear or shyness; and

viii. Acquire linguistic skills and ability of oral and body language expression.

Types of Art Activities (for instance):

1. Music
2. Printing and weaving
3. Art education
4. Photography
5. School radio
6. Handicrafts
7. Sculpture
8. Caricature
9. Acting and theatre
10. Ceramic art (Ali, 2007a).

Fifth: Sport Activities

Definition:

Activities concerned with developing and promoting students' natural motor abilities and skills to achieve comprehensive balanced physical, skill and emotional development along with gaining physical fitness, sound healthy traditions, favorable social and moral behaviors and values.

Objectives:

i. Develop individual's physical skills benefiting them in life;

ii. Positively occupy spare time;

iii. Practise sound healthy life;

iv. Train in gaining leadership skills;

v. Allow students to acquire correct social behaviour and sound behavioural patterns such as cooperation and sporting spirit;

vi. Acquire good moral values such as self-confidence and responsibility assumption;

vii. Develop and promote student's natural motor abilities and skills to achieve comprehensive balanced physical, skill and emotional development; and

viii. Develop sporting culture in line with students' cognitive abilities.

Types of Sport Activities (for instance):

1. Football
2. Basketball
3. Water polo
4. Swordplay
5. Track and field games.
6. Volleyball
7. Handball
8. Swimming
9. Athletic exercises

Sixth: Handicraft Activities

Definition:

Activities that contribute to prepare an individual for successful career by linking career related trends with human relations skills. They also help students grasp any newly introduced and contingent developments in surrounding environment.

Objectives:

i. Develop observation and troubleshooting skills;

ii. Develop students' skills in certain simple works that they need in daily life;

iii. Develop the ability to solve environmental problems;

iv. Enhance student's passion for and appreciation of manual work;

v. Encourage students to rationalize consumption of available raw materials;

vi. Acquaint students with value of cooperation and work in small and large groups;

vii. Help students know how to deal with modern technology in line with their age category; and

viii. Enhance student's time value in work and production.

Types of Handicraft Activities (for instance):

1. Car mechanics
2. Electricity
3. Carpentry
4. Decoration design
5. Food and nutrition
6. Sewing and tailoring
7. Learning aids preparation
9. Athletic exercises (Ahmad, 2006).

Seventh: Scouting & Girl Guides Activity

Definition:

A voluntary activity that contributes to develop young people towards achievement of their maximum physical, mental, social and spiritual abilities as individuals and responsible citizens and as members in their local, national and global communities. The Scout movement is based on several principles, importantly duty towards others, loyalty to homeland, promotion of peace, friendship and understanding at local, national and international levels, participation in society development, and human dignity appreciation and respect.

Objectives:

i. Prepare students for life as per techniques realizing the society's objectives;

ii. Refine traits and tendencies, and gain mental, social and manual skills;

iii. Implant sincere patriotic spirit, pride of homeland and striving to make the society happy;

iv. Train in assuming responsibility, overcoming difficulties and making wise decisions;

v. Detect and refine students' leadership skills; and

vi. Develop skills and experiences of dealing with and adaptation to the group and create new relationships and friendships.

Fields of Scouting & Girl Guides Activity:

i. All types of camps;

ii. Scouting trips inside Kuwait and abroad;
iii. Participation in national occasions;
iv. Visiting social institutions in the State; and
v. Participation in local and international camping events (Salem, 2009).

Based on the previous presentation, we can see extent of diversity in scholastic fields, activities, programmes and projects such that students can develop their creative skills under supervision of school management.

5.8.Tasks and Roles of General Supervisor of Scholastic Activities, Programs and Projects

According to the educational system in Kuwait, each school should have a general supervisor of scholastic activities, programmes and projects, who is a teacher at the same time so that they can follow up their school's activities, programmes and projects along with providing technical support, development and assessment, etc.

5.8.1. Definition of Supervision Process

Supervision is a term widely used in many aspects of life and usually indicates directing, monitoring or guiding others and motivating their activity to improve their performance. Terminologically, supervision means the existence of a professional relationship between a supervisor and subordinates created by the organization's authority and accepted by both parties. Supervision carries the same general concept of supervision in education but it is usually applied to education related aspects of activity. It might be suitable here to present what specialists have written about the nature and function of supervision in connection with achieving educational objectives. Technical supervision of scholastic projects, programmes and activities is intended to develop informative and educational programmes suiting students' needs, and provide tools and means that enable students to learn and gain experiences and interact with situation in a more effective and easier manner.

5.8.2. Functions of General Supervisor of Scholastic Activities, Programmes and Projects

i. Vision of Education Goals:

Tasks assigned to the general supervisor of scholastic activities include provision of assistance to supervisors of scholastic activities and projects in order to clearly recognize the real

objectives of education and recommend distinct role undertaken by school in achieving these goals because education today involves care for many aspects in addition to mental cognitive aspect including physical, aesthetic, emotional and moral aspects.

ii. Linking Subjects to Scholastic Activities and Projects:

Tasks assigned to the general supervisor of scholastic activities and projects include enabling the teacher to view their subject in the right position in order to study subject aids and scholastic activities.

iii. Prevailing Supervision Pattern:

The role of the general supervisor of scholastic activities is to serve as a link between all supervision and guidance authorities to facilitate the mission of teachers supervising scholastic activities where the general supervisor shall explain all the importance and effective role of activities in achieving educational objectives. The relationship between the general supervisor of scholastic activities and teachers is a democratic, informed one based on collaborative work between both parties. Democratic supervision emphasizes respect for the teacher's personality, provides them with opportunity for self-development, gives them freedom of thinking in their own way and allows them to participate in directing scholastic activities, determining policies and discussing objectives, plans, methods and means of scholastic activity improvement (Ali, 2007b).

iv. Teacher's Attitude:

The role of general supervisor of scholastic activities is to stir up enthusiasm and competition in practising scholastic activities among teachers and to support teachers' positive attitude in practising scholastic activities because the teacher's attitude shall determine the activity position to curriculum in terms of planning, implementation, acceptance and utilization.

v. Development of Students' Abilities and Tendencies:

General supervision aims to help teachers clearly recognize students' needs, abilities and tendencies and to use their best efforts to satisfy these needs.

vi. Optimal Benefiting from Teachers:

General supervision aims to verify the work that suits every teacher, assign such work to them and encourage them for advancement achievement. A general supervisor of scholastic activities and projects can detect teachers' excellence in specific fields through cooperation with technical supervisors, section heads and technical inspectors of school subjects, on the one hand, and with school management on the other hand, through observing teachers during the school day throughout the school year.

vii. Scholastic Activities and Projects Planning:

The general supervisor participates in establishing the overall plan of scholastic activity created by the scholastic activities council in the school as sound planning is critical for success of work in scholastic activity.

viii. Provision of Material and Human Capabilities:

Key functions assigned to the general supervisor of scholastic activities include the provision of all material and spatial capabilities and adequate time for performing the activities through cooperation with school management and responsible authorities in governmental and private organizations and institutions.

ix. Assessment Process:

There is no doubt that any action plan that does not contain techniques and means for assessing work results thereof is lacking and useless in improving and developing scholastic work or activity. There are multiple techniques and means that the general supervisor of scholastic activities can utilize to assess the results of students' works in any scholastic activity, programme or project including observation lists, records, cards, reports, questionnaires, competition results and other techniques and methods (Yousef, 2009).

5.8.3. Criteria to be Considered in Selecting General Supervisor of Scholastic Activities, Programmes and Projects in School

There are certain criteria and standards that a successful general supervisor of scholastic activities, programmes and projects should have, importantly the following:

i. To be an excellent teacher in terms of commitment, dedication and contribution in work;

ii. To have a spirit of understanding and friendliness towards supervisors of groups of scholastic activities and projects, school management, supervisory authorities and students;

iii. To have complete knowledge of the types and objectives of scholastic activities and projects;

iv. To be intelligent and enthusiastic in work. Scholastic activity success is correlated with the supervisor's traits and abilities. Intelligence is an essential requirement for understanding supervisors and students and ideal leadership in a democratic way to select effective work approach, provide innovative ideas and suggest useful proposals;

v. To have a joyful spirit, encourage activity supervisors and members, and follow up the activity programmes in an atmosphere of controlled freedom;

vi. Their behaviours should be acceptable, resolute and relevant; supervisor should be tolerant with group members with no slackness; determine and explain roles; and sociable and tactful with reasonable ability to deal with school and local communities;

vii. General supervisor of scholastic activities should have initiative and leadership spirit; capable of creation and innovation; and provide a climate that helps supervisors and students provide creative participation, initiative and innovation; and

viii. To be constantly striving to achieve renewable objectives (Barrak, 2001).

5.8.4. The Importance of Scholastic Activities and Projects:

The educational guide issued by the Ministry of Education of the State of Kuwait, it indicates the importance of scholastic activities and projects as follows:

Scholastic activities and projects are intended to achieve several objectives in the following fields:

First: In the Scope of Learners:

i. Development of the students' abilities and tendencies: Scholastic activities and projects provide opportunities for students' mental and physical abilities to benefit, and highlight, develop and direct their tendencies. They also provide talented students with effective methods for scientific thinking in hands-on and experimental activity situations to benefit from modern technologies; encourage students to practice continuing and self-learning over lifespan in all life fields;

ii. The importance of principles of moral and religious education: culture and religious activity provides opportunity for training students in moderate behaviour in their relationships and dealings; encourage them to recognize the Arabian heritage to develop desirable trends towards students' pride in their religion; and lend them behavioural patterns through various values and principles (Al-Sherida & Ali, 2001).

iii. Treatment of students' psychological and social problems: Through scholastic activities and project situations, certain psychological and social problems can be treated, such as introversion, shyness and lack of self-confidence;

iv. Development of sporting spirit and physical and motor fitness: This can be achieved through practising different sporting and motor activities and projects, and participating in friendly games intended to develop motor skills related to the ways of practice of sporting games, for which class periods allocated for sporting education do not allow training;

v. Habituate students to benefit from their spare time: This takes place through familiarization with a variety of scholastic activities and projects that can be actually practised, protecting students from deviations and taking recreation for themselves;

vi. Linking school life with surrounding social life: This takes place through activities intended to recognize social institutions in the surrounding environment (Yousef, 2009).

vii. Training students to like social values: such as cooperative work, respect of working people and appreciation of manual work. Actual practice of scientific and hands-on activities undoubtedly illustrates for students the value of manual work in production

and its correlation with theoretical sciences and technology;

viii. Contribution to democratic upbringing of students: This occurs through opportunities made available for practising activities and projects that would train students in leadership and subordination, respect of order and law, and acquisition of ability to discuss viewpoints without fanaticism;

ix. Promotion of artistic values: This is achieved by going out to the environment, practising different arts. Through artistic activities and projects, students are trained in balancing, analysis, criticism and appreciation of art works including music, acting and plastic arts (Ali, 2007a).

x. Benefit from spare time: This takes place through providing a learner with opportunity to benefit from spare time, realizing goodness, benefit and advantage through developing their creative abilities and talents under direction by supervisors with different experiences;

xi. Consideration of individual differences: among students in general and innovators in particular through several scholastic activities and projects in which individual differences are taken into account upon designing the same;

xii. Development of mental abilities: through learning a scientific thinking approach, development of creativity and innovation spirit and self-learning skills through different applications of different scholastic activities and programmes based on the principle of learning through trial and error; and

Deepening belonging to the homeland of Kuwait: an Arab Gulf State that respects international law and belongs to the international community such as the Arab League and the UN (Barrak, 2001).

Second: In the Scope of Curricula:

i. Emphasize and establish school subjects in an applied scientific manner as scholastic activities and projects which are considered as natural medium for linking school subjects and integrating the student's educational experiences they acquire;

ii. Highlight experiences acquired by learners through scholastic activities that are

deemed an important part of curriculum;

iii. Implant and support information and knowledge included in the school curricula and establish school subjects in a scientific applied manner;

iv. Support scientific and applied aspects of knowledge theoretically acquired by the learner in different topics;

v. Develop learners' abilities of creativity and make room for expressing such experiences in a practical manner; and

vi. Activate education and learning processes through activities and projects performed by the learner in connection with the school curriculum (Ahmad, 2006).

Following the presentation and analysis of several educational aspects and dimensions of the education system in the State of Kuwait and relevant secondary themes of scholastic activities, programmes and projects, it is important to make a comparison with the education system of another Arabic country with a relatively similar curriculum and educational system to Kuwait. Therefore, the researcher chose the education system in the Kingdom of Saudi Arabia because KSA is a country close to Kuwait in terms of geographical borders as well as social, educational, religious and demographic traditions and values.

Thus, I will briefly address certain educational aspects and dimensions of the Kingdom of Saudi Arabian the following section.

5.9. Overall Principles of Education in the Kingdom of Saudi Arabia

i. The present life is a stage of production and work in which the individual invests their potential based on faith and guidance for the perpetual eternal life in the afterworld. Today is the time for work and tomorrow is the time for judgement;

ii. Growth opportunities are available before the student contributes to the development of the society where they live and hence benefit from such development in which they participated;

iii. The female's right to education is recognized in harmony with her nature and preparing her for her mission in life provided that this shall take place with decency and thoughtfulness in light of the law of Islam. Women are similar to men;

iv. Seeking knowledge is obligatory on every individual. The state has an obligation to spread and facilitate knowledge to the maximum extent of its capability and potentials;

v. Religion science is fundamental in all stages of elementary, intermediary and secondary education with all its branches. Religion culture shall be a basic subject in all years of higher education (Slaiman, 1999);

vi. All different types and subjects of science and knowledge shall reflect the Islamic spirit in terms of curriculum and teaching in connection with the tackling of their issues, judgement on theories thereof and methods of utilization thereof so that they become derived from Islam and in harmony with righteous Islamic thinking;

vii. Benefit shall be attained from all useful human knowledge in light of religion for the sake of the nation's advancement and the enhancement of its living standard. The word of wisdom is the lost property of the believer, so he has a better right to it wherever he finds it;

viii. There should be consistency between knowledge and applied methodology (techniques) given the fact that they are most important means of cultural, social, economic and health development in order to enhance the standards of theSaudi nation and other countries, and perform KSA's role in global cultural advancement;

ix. Education in all educational stages shall be linked with the state's public development;

x. Mindful interaction with global developments in the fields of science, culture and literature through monitoring, participation therein and direction thereof towards realizing benefit and advancement for the society and humanity;

xi. Relevant correlation between the national history and the civilization of Islam and benefit from the ancestors' course of life and conduct to serve as a guide for the present and future;

xii. Respect for public rights guaranteed by Islam which requires protection thereof to maintain security and attain stability of Muslim society in religion, soul, offspring, honour, mind and property;

xiii. Social solidarity among the members of society in terms of cooperation, affection, fraternity and giving preference to the public interest over the personal;

xiv. Mutual advice between the ruler and the citizens to guarantee rights and obligations, and promote loyalty and devotion;

xv. The essential rule is that Arabic shall be the language of education in all stages and subjects thereof unless necessity requires education in other languages; and

xvi. Power in its noblest form and most comprehensive significance shall be: the power of belief, power of morals and power of physical structure (Center of Statistical Information, 1995).

5.9.1. Overall Objectives of Education in Saudi Arabia

i. Education generally aims to provide students with Islamic values and teachings, and ideal examples; teach them different forms of knowledge and skills; develop constructive behavioural traits; develop the society economically, socially and culturally, and prepare the individual to be a useful member of society. The overall objectives of education in Saudi Arabia are as follows:

ii. Bring up the believer citizen to be a helpful agent in building their nation and to feel their responsibilities for service and defending their country;

iii. Provide students with a suitable amount of cultural information and different experiences making them an active member of the society;

iv. Promote in students a sense of the cultural, economic and social problems of the society and prepare them to contribute to solving the same;

v. Emphasize the individual's dignity and provide suitable opportunities for developing their abilities so that they can contribute to the nation's renaissance;

vi. Create formal Islamic thought in individuals in order for them to act based on a uniform Islamic conceptualization with respect to the universe, humankind and life with all details derived from the same;

vii. Enhance the standard of psychological health through spreading tranquility in the student's soul and providing a suitable learning environment;

viii. Develop mathematical thinking and arithmetical skills; train in usage of the language of digits, and how to benefit from the same in scientific and career fields (Slaiman, 1999);

ix. Develop reading skills and habit of perusing books etc. in an effort to increase knowledge;

x. Habituate students to sound hygiene habits and spread health awareness;

xi. Familiarize students with motor skills that are based on sporting and health rules to build a sound body so that the individual can perform their duties in firmly and powerfully serving their religion and society;

xii. Keep abreast of the characteristics of youngsters' psychological development stages in each educational stage; help the individual to grow normally – spiritually, mentally, emotionally and socially; and emphasize the Islamic spiritual aspect to serve as the first guide of personal and public behaviour for individuals and the society;

xiii. Identify individual differences among students in paving the way for providing proper guidance to them and helping them develop according to their abilities and tendencies;

xiv. Care for students with learning difficulties, strive to eliminate the causes of these to the maximum extent, and design special permanent and temporary programmes as per their needs;

xv. Support several methods to discover talented students, sponsor them and provide different capabilities and opportunities to develop their talents within the framework of

general programmes and through designing special programmes; and

xvi. Inculcate passion for work in students' souls, praise all forms of work, encourage mastery and creativity in work, and emphasize its impact on building the nation. This can be achieved through the following:

i. Formation of scientific skills and attention to applied aspects in schools where a student is provided with opportunities to carry out manual artworks, contribute to production and conduct experiments in laboratories, workshops and farm fields;

ii. Studying scientific criteria on which different activities are based in order that automated production level keeps up to rising and innovation level (Yousef, 2008).

5.9.2. Objectives of Secondary Stage of Education in Saudi Arabia

The secondary education stage has its own nature in term of students' age and development characteristics. It requires a variety of guidance and preparation. This stage involves different branches which intermediate certificate holders join according to the regulations established by relevant authorities. It includes general secondary education, scientific institutes, the Islamic University, teacher training institutes and vocational institutes of different kinds (including agricultural, industrial and commercial), technical and sporting institutes, and any newly introduced institutions at this level. This stage shares with other stages the objective of achieving the overall objectives of education in addition to its own objectives. Since the student sample in the present research comprises secondary education students in Kuwait, it is important to indicate the objectives of the secondary stage in Saudi Arabia for comparison with Kuwait. These objectives are as follows:

i. Pursue the achievement of loyalty to God solely and perform good deeds for the sole sake of God and make them, in all aspects, in compliance with the Law of God;

ii. Reinforce the religious creed which straightens the student's view of the universe, humankind and life in the present life and the afterworld, and provide them with basic concepts and religious culture making them proud of their religion and capable of calling for and defending it;

iii. Enable living affiliation to the Arabian nation bearing the flag of monotheism;

iv. Realize fidelity to the overall Arab homeland and the individual's homeland (the Kingdom of Saudi Arabia) as appropriate for this age including sublimation in thought, aspiration and strength in body;

v. Care for the students' different abilities and tendencies that emerge during this period and direct the same according to what suits them and achieves the objectives of Islamic upbringing in its general concept (Slaiman,1999);

vi. Develop the student's scientific thinking, deepen the spirit of research, experimentation and methodological tracking, use references and habituate them to sound methods of study;

vii. Provide capable students with the opportunity to pursue study at different levels in higher education institutes and universities in different specializations;

viii. Prepare all students for work in all careers at appropriate level;

ix. Realize the awareness needed to build a sound Muslim family;

x. Look after the youth on the basis of tolerance, address their intellectual and emotional problems and help them successfully and peacefully pass through this critical period of life.

xi. Teach students the virtue of useful reading, the desire for increasing helpful knowledge and good deeds, and how to exploit their spare time in a useful manner for prospering the individual's life and social conditions; and

xii. Create positive awareness through which a student can face destructive ideas and misleading trends (Jamal, 2007).

5.9.3. Educational Stages in Saudi Arabia

KSA is keen on providing an educational service through a system that allows students to transfer from one stage to another in normal scaling in line with the students' physical and psychological characteristics in their different development phases. The document titled 'Education Policy in the Kingdom of Saudi Arabia' defines the education stages, the objectives of each stage, the duration of study in each stage, the categories of students that can join the same and nature of study therein. General education in KSA consists of three study stages which

together constitute the general education stage, as well as the kindergarten stage that receives children at the age of four or five. This stage is not included in the official education stages as joining it is not a prerequisite for joining the first elementary stage. These stages are as follows:

i. Elementary Stage

The official educational stages start with the elementary education stage, which represents the base of the educational hierarchy and accommodates 66.2 per cent of all students enrolled in public education. This stage span is six scholastic years, which children commence at the age of six.

ii. Intermediate Stage

Children who successfully complete the elementary stage proceed to the intermediate stage, which they usually join at the age of twelve and spend three years therein.

iii. Secondary Stage

Students who successfully complete the intermediate stage proceed to secondary education. The study duration in this stage is three years, which a student usually commences at the age of fifteen to complete it approximately at the age of eighteen (Center of Statistical Information, 1995). According to the new study plan, a student is required to select one major subject in the last two years of secondary education out of the four available majors: namely Arabic and religious science; business and social sciences; physical science and applied (technical) science. Table 17 sets out the educational stages of schools in Saudi Arabia (Jamal, 2007).

Table 17.
Educational Stages of Schools in Saudi Arabia

Stages / Years	Kindergarten	Elementary Stage	Intermediate Stage	Secondary Stage
Age (yrs)	4–5	6–11	12–14	15–17
Actual period	Two years	Six years	Three years	Three years

5.9.4.Importance of Scholastic Activities and Projects in Saudi Arabia

The Ministry of Education of the Kingdom of Saudi Arabia gives importance to scholastic activities and projects in line with the role they play in achieving the overall education objectives. Al-Ghamdi (1998) emphasizes that the Ministry of Education strives to achieve the

following objectives of student activities and projects in general:

i. Building the learner's integrated personality to become a good citizen linked to and proud of their homeland and ready to make sacrifices for its sake;

ii. Developing the learner's ability to interact with their Arab society achieving sound adaptation in view of rapid successive developments;

iii. Establish constructive social values such as cooperation, honest competition, and social service;

iv. Discover talents and capacities, and develop, refine and direct skills to serve the individual, the group and the society;

v. Invest and appreciate time in activities enriching and diversifying a learner's experiences and to gain benefit from the same in their career;

vi. Respect work and working people, and appreciate the value of work and enjoy it, supporting the recognition and mastery of processes;

vii. Teach scientific subjects so that a student can visualize it and hence easily assimilate the same and employ the senses and motivation to achieve this end;

viii. Train learners to benefit from the experiences they have acquired in solving their society's problems;

ix. Emphasize correlation with the Islamic nation's history and civilization, and follow the example of righteous forefathers in social life;

x. Educate the learner in self-dependence, assumption of responsibility and habituation to leadership and obedience; and

xi. Satisfy the learner's psychological and social needs.

It is noteworthy that scholastic activities and programmes applied in Saudi Arabia involve many fields such as science, agriculture, art and handicraft activities, as well as participation in the international Scouting movement. Females are only excluded insofar as religious teachings are strictly applied in Saudi Arabia, reflecting on many student activities where these teachings prohibit girls from certain student activities such as music, theatre…etc.

5.10. Comparison of Certain Educational Aspects between Kuwait and Saudi Arabia

The previous sections present and illustrate several educational aspects, dimensions and themes of the educational systems in Kuwait and Saudi Arabia. More details are given about the educational system in Kuwait because that is the subject of the present study. The presentation and review of the system in Saudi Arabia is intended to provide an analytical overview and comparison between educational systems in Kuwait and Saudi Arabia through which we can understand and recognize many educational aspects of the educational system in Kuwait when compared with Saudi Arabia. While both countries have similar demographic, social and educational characteristics and variables, there are several differences in their educational systems. These differences are summarized as follows:

i. Scholastic Majors:

Students in the secondary stage in Kuwait can study two majors only; i.e. science or literature. As such they can pursue their university education according to these majors. In Saudi Arabia, students in the secondary stage can select from four majors; namely Arabic and religious science, business and social sciences, physical science and applied (technical) science major. In fact, the four majors in the secondary stage in Saudi Arabia are the same majors included in the science or literature sections in Kuwait. The different titles of the majors or study sections in the secondary stage or the greater number between Kuwait and Saudi Arabia eventually lead to the same result with respect to the student's university education. Therefore, the difference here lies in the number and titles of the study majors in the secondary stage between Kuwait and Saudi Arabia, not in their nature.

ii. School Educational Stage:

Comparing the educational stages in Kuwait and Saudi Arabia, we find some differences in the permitted age for commencing the elementary and intermediate stages and also in the actual period of study in these two stages. For more details refer to Table 18to observe these differences.

Table 18.
Comparison of Educational Stages between Kuwait and Saudi Arabia

Stages / Country	Kindergarten	Elementary Stage	Intermediate Stage	Secondary Stage
Kuwait	4–5 yrs	6–10 yrs	11–14 yrs	15–17 yrs
Saudi Arabia	4–5 yrs	6–11 yrs	12–14 yrs	15–17 yrs

However, the educational stage in State of Kuwait, introduced from the school year 2005/2006, has educational, psychological and social justifications as mentioned earlier.

iii. Scholastic Activities, Programmes and Projects:

There is a significant similarity in type, nature and number of scholastic activities, programmes and projects in place in Kuwait and Saudi Arabia. However, Kuwait is more characterized than Saudi Arabia by the availability of student-oriented activities, programmes and projects that are not applied or practised in Saudi Arabia. In particular this relates to female students' access to activities such as music, Scouting, theatre and dance because the religious teachings applied in Saudi Arabia are strict and severe. This adversely affects presence of such activities in Saudi Arabia. In addition, the application of many scholastic activities including the project method faces several obstacles and problems, importantly:

i. Using inadequate techniques and criteria such as teachers' estimates and school tests to discover talented students from scholastic activities and projects;

ii. Study curricula and educational techniques are inappropriate for caring for talented students in scholastic activities;

iii. Deficiency in teachers' understanding of talented students and their needs: the development of study programmes to realize basic requirements for promoting talent is a necessary condition for sponsoring such students; however, it will not be sufficient unless there is a competent teacher who is qualified to work with these categories of students, in particular students who show excellence in scholastic activities and projects (Agbari, 2004);

iv. Lack of psychological specialists to apply psychological tests and measurements such as IQ test, creative thinking tests, and special abilities and tendency tests, which also face the problem of non-codification to Saudi Arabia environment;

v. Failure to grant students complete freedom in selecting scholastic activities or projects that they desire in line with their tendencies and interests;

vi. Neglecting the students' production and innovations and failure to highlight and praise the same, as well as lack of necessary incentives for students at school;

vii. Unavailability of special courses or places for each activity in which students practice the activity due to failure to take such activities into consideration when planning schools due to leased buildings;

viii. Unavailability of necessary tools and equipment for performing art and vocational activities and projects such as painting, electricity, plumbing and mechanics;

ix. Few programmes predesigned by education departments, which aim to discover talented students, as they are limited to art education, diction or expression.

x. Teachers' inability to plan for discovering talented students in scholastic projects and to create appropriate programmes, due to lack of belief in or failure to demand the same, or limited experience or ignorance of objectives; and

xi. Failure to actually involve students in the planning and organization process for scholastic activity programmes due to paying attention to formal and written issues in the activity and lack of confidence between the student and activity supervisor in different student activities (Mohammad, 2008).

These drawbacks hinder the achievement of educational objectives. Such drawbacks do not occur in this form in Kuwait, where teachers and students are encouraged to practise student activities and projects along with freedom of participation in any educational project in light of the multiple nature, type and number of scholastic activities and projects such as music, theatre and Scouting for boys and girls…etc.

CHAPTER 6

INTERPRETATION OF RESULTS AND DISCUSISON

Chapter 6

Interpretation of Results and Discussion

The perceptions of students and teachers with regard to their experiences in the project are, in general, positive. They all refer to teamwork, communication skills, connection with the professional practice, and an increased motivation for learning (Ruim, Dinis, Maria, & Natasha, 2007). The specific characteristics of project learning as identified by Helle and colleagues (2006) are recognized by both the teaching staff as well as the students as a clear merit of project-led education. The approach appears to be an answer to the initial motives for the implementation of this project.

The project method possesses a characteristic that distinguishes it from other proven didactic procedures of the New Education movement. Unlike the DaltonPlan, Winnetka, Decroly or María Montessori, the project method was 'fatherless'; its origins cannot be traced clearly to any one author. This condition was made especially apparent at times owing to the reluctance of a number of North American pedagogues – Dewey in particular – to claim paternity (Ronald, 2010).

Eskrootchi and Oskroch (2010)assert that there is more opportunity in project method for collaboration during the experiment and simulation, hence more interaction between students, and also with the teacher. This finding also supports Schutte's (1997) suggestion that the enhanced levels of interaction with other students and the teacher results in greater efficacy of computer-mediated communications. Another study demonstrates that all learning activities such as constructive, self-directed and collaborative learning occur as a result of verbal interactions through the PBL environment (Yew & Schmidt, 2009).

In the previous chapter, the results of this study were presented and discussed. In this chapter, an attempt has been made to interpret and analyse these results by referring to various results and dimensions of the review of literature on the project method.

The main emphasis point of the current study was to investigate the effect of project method theory on certain variables– creative thinking, critical thinking and emotional intelligence – among a sample of male and female secondary school students in the State of Kuwait. Furthermore, this study sought to explore the differences between gender (male and female) and academic

specialization (scientific section and literary section) on the study variables. Also the current study tests the directions of relationships between creative thinking and other study variables. Additionally we study the effect of academic specialization and gender and their interaction on creative thinking. Finally, this study determines the best predictors of creative thinking through other study variables. Several statistical techniques were used in the current study including descriptive statistic, t-test, Pearson's coefficient of correlation, ANOVA and stepwise regression.

The study was conducted among adolescents with a mean ages of 17.2 years (SD 1.94 years), participants were in eleventh and twelfth grades. The present study thus considers *a case study* of the students in public education in the State of Kuwait. The total number of the sample was 157 (75 boys, and 82 girls). Subjects had comparable socio-economic and demographic backgrounds.

In order to study the difference between the genders' scores (males, females) and the difference between academic specialization (scientific section, and literary section) in the study variables of creative thinking, critical thinking and emotional intelligence, t-test was used in order to detect the difference between the gender and academic specialization in the study variables.

From Tables 9 and 10 we can see that all t-test values in both previous tables are not significant, which means that both males' and females' scores and those of students in the two academic specializations, are similar in the study variables. To discuss and analyse these results, I am aware that these results reflect the dimensions and the reality of the environmental, educational and social circumstances and influencing factors surrounding the study sample represented in family and prevailing culture. Such influencing factors impose on the study sample a specific nature and type of thinking, behaviours, social interaction, selection of specific academic specialization, and academic achievements.

There is no doubt that as these results suggest, there are no differences between the genders or academic specializations in the study variables, and that means the effect and the impact of scholastic, socially and familial environments with various circumstances of the study sample in present study are equal or at least similar. The scholastic factors and circumstances include students' activities, scholastic curricula, the dimensions and the nature of interaction between the students and their teachers…etc. The social factors and circumstances are the quantity and quality of the social organizations and activities etc. The familial factors and circumstances are the familial nature of parental upbringing and education, the family atmosphere, the nature of interaction

between the parents and their family members…etc. These effects and impacts of the surrounding environment – scholastic, social and familial – are similar or equal between the males and females in the present study. That is why there are no differences between the genders in the study variables, based on the result of t-test, nor differences between the academic specializations.

These results offer specific indicators and reflections – the contents, cognitive traits and personal skills whether in the curriculum of the scientific or literary major –which give us the same educational outcomes and results, even for various students' activities which belong to these sections, and their impacts were equal with its reflections on students' skills and abilities whether in creative thinking or critical thinking or emotional thinking, that is why the results of t-test values indicated that there are no differences between academic specializations.

This result leads to rejection of the first hypothesis of the present study, which stated that there will be a difference between gender scores (males, females) in the variables of the present study; creative thinking, critical thinking and emotional intelligence. Moreover, it leads to rejection of the second hypothesis of present study, which stated that there will be differences between the scores of students with different academic specializations (scientific and literary) in the same study variables. Sometimes we can note that there are some various contradictions and differences of results between some specific hypotheses and these points, because there is not enough research in on the project method in the educational literature from the Arabian environment and culture. That is why sometimes the directions of some hypotheses will be obscure and mysterious for the researcher.

To clarify and determine the nature and direction of the relationship between creative thinking and critical thinking among the total sample of present study, and to test the third hypothesis that there will be statistically positive correlations between these variables, I used Pearson Coefficient of Correlation Technique to determining the type of relationship between the selected variables. As shown in Table 11, the finding showed that there is no statistically significant correlation between creative thinking and critical thinking among the total sample of the present study. This result leads to rejection of the third hypothesis of the study. There are some studies whose results are the same as the result for the third hypothesis of the current study (Galton as cited in Gardner, 1992; Flora as cited in Henz, 1992; Matt& Rick, 2001; Yang& Lin, 2004).

Some studies have asserted that there is a positive correlation between creative thinking and critical thinking (Bizman, 1990; Majdi, 1986). Isaksen (1993) mentioned that there are many studies on logic which conclude that there is relationship between creative thinking and critical

thinking, as the general situation needs both creative thinking and critical thinking to be more actively coordinated and interacting together at the level of facts processing. However, Michelli (1991) asserted that there are differences between creative thinking and critical thinking – creative thinking is free thinking, but critical thinking is analytic and logical thinking.

Some studies, in contrast, have mentioned that creative thinking and critical thinking are opposed to one another (Toren, 1993), while others acknowledge complementary functioning (Bleedorn, 1993), and it is also argued that there is a problem in attempting to distinguish the two separate kinds of thinking. It is suggested simply that the focus should be on good thinking in the context of the rules, methods and criteria of specific domains (Bailin, 1993). For example, a number of researchers emphasize that critical thinking involves not only logical but also creative (intuitive) aspects (Meyers, 1986; Brookfield, 1987; Garrison, 1991). Critical thinking requires the understanding of a broad knowledge base, the ability to identify inferential relationships, examining the credibility of statements, the search for elements to draw conclusions, and the ability to explain the reasoning to get to this point. This analysis process is quite different from the other literature that had more parallels to creative thinking processes (Marrapodi, 2003). Bloom's taxonomy (as cited in Marrapodi, 2003) is often referenced, using the higher level thinking skills in order to connect to critical and creative thinking. He mentioned that critical thinking involves logical thinking and reasoning while creative thinking involves creating something new or original. While critical thinking can be thought of as more left brain and creative thinking more right brain, they both involve 'thinking'.

Brookfield (1987) advocates the process of a critical thinker's examination of information by looking at the epistemological, experiential, communicative and political perspectives of the source information. Wycoff (as cited in Marrapodi, 2003) considers creativity to be a natural ability of every person and the skill of developing a number of ideas and connecting diverse concepts can be enhanced through training and exercise. It is up to the leadership to provide the direction and stimuli to spur creativity. She names nine components of personal innovation. Several of these overlap with steps involved in the critical thinking process. The Saskatchewan School Board (as cited in Jean, 2003) defines both creative and critical thinking as qualities of good thinking processes and as types of thinking. Creative thinking is generally considered to be involved with the creation or generation of ideas, processes, experiences or objects; critical thinking is concerned with their evaluation. So they are interrelated and complementary aspects of thinking.

Helgeson (1993) suggests that there are three ingredients for teaching critical and creative thinking to children through the content areas; using relevant, real world issues, providing structure to solve problems and organize information, and a nurturing classroom environment. This thinking parallels with many of the suggestions on fostering creativity in the workplace. The environment must be supportive of the process.

Ragsdell (2001) writes about 'critical creativity' using a process of critical systems thinking. Being critical involves encouraging complementarism, sociological awareness, human well-being and emancipation. Complementarism could be seen in an appreciation that creativity can arise from a number of different origins, from conflict or from natural personal qualities. There are some key principles in critical creativity. First, the systemic principle, looking at the coherent whole, then the principle of participation, where multiple views are taken into account. Finally, there is the principle of reflection, where information is pondered. Critical creativity attempts to further the emancipation of individuals through design and debate. Whether there are differences or consistency between the results of studies as mentioned before, the directions and the nature of these results depend on many situational, technical and personal factors, and circumstances such as the sample, tools, gender, socioeconomic variables, demographic variables, individual differences, cognitive traits and conceptualization stimulations. According the fourth hypothesis in this study, there is a statistically positive correlation between creative thinking and emotional intelligence among the total sample of the present study. I used Pearson's Coefficient of Correlation to determine the direction of the relation between the selected variables. As shown in Table 11, and as is obvious among correlation values, there is a positive relationship between creative thinking and emotional intelligence. As this result supports the fourth hypothesis. There are some related studies that reached the same results between the two previous selected variables (David, 2005; Fatema, 2009).

To nurture children's creativity, intervention efforts need to be made not only in enhancing their emotional intelligence abilities, but also in promoting family functioning and roles to be more robustor supportive in the face of family stress. Accordingly, Chinese parents, for instance, who strive to maintain family harmony at all costs might be better advised that family disharmony can be constructive and that family hardiness or resilience and adaptive coping with family stressors can be more conducive to children's creativity development (David, 2005).

The components and abilities of creative thinking and emotional intelligence do not work in different ways or directions but together. So if we want to gain higher quality of achievements and goals, we must encourage integration and interaction between these components.

It is also highly probable that some components/habits of mind come to the fore at different times and for different purposes in development. We all know, for instance, children who are talented and creative in drawing or painting whose social and physical abilities are much more rudimentary, or the young child who shows little aesthetic interest, only to blossom in adolescence. We also know youngsters who, experiencing times of emotional distress, may either endow their creative practice with heightened feelings or withdraw from any such activity entirely (Judith, 2009).

Gardner (1983) claims that humans do not have just one kind of intelligence, as traditionally assumed, which can be assessed by standardized tests such as the Stanford-Binet IQ test. He states that we have several (seven) different kinds of intelligences including; musical, social or interpersonal, emotional or intrapersonal, logical mathematical, linguistic and visual-spatial. Creative thinking and emotional intelligence together can be seen as fundamental capacities which can create a state of balance which is at the same time, paradoxically, a constant state of flux. The development and enhancement of these capacities in a person enables them to be able to adapt and adjust to changing realities, whether those realities are other people, ideas or environmental (Victoria, 2000).

For creative person to build their creative abilities and skills, they must educate and develop suitable and good social connections and relationships with people in the surrounding environment, and without the emotional keys and abilities they cannot achieve these objectives, and their live, cognitive and creative experiences will be limited. We realize that emotional intelligence can facilitate decision making, problem solving and the pursuit of important life goals. For instance, emotional intelligence can facilitate creative thinking, which in turn can expand one's options in making important life decisions (Sam, 2012).

Victoria (2000) mentioned that emotional intelligence is essential to creative thinking in several important ways. First, the discipline and motivation that it takes to learn and master the essentials of a given domain of inquiry demands the ability to tolerate frustration and ambiguity, as well as the ability to delay gratification. Second, the ability to put a problem aside and let it incubate without having an immediate solution also demands tolerance for frustration, ambiguity and delayed gratification. Third, the ability to withstand the upheaval caused by questioning belief systems and

assumptions, demands these emotional abilities as well. Fourth, creative thinking is an essentially amoral cognitive skill that can serve any purpose as determined by one's own sense of moral and ethical behaviour, as well as one's emotional needs, whether conscious or unconscious. Therefore, emotional intelligence is crucial for the utilization of this skill in a healthy and productive way.

We can realize that emotional intelligence provides a basis for the kind of creative thinking and problem solving necessary in mastering a skill and developing the capacity for intellectual reasoning. The same kind of thinking is also needed to build one's emotional intelligence abilities and then develop these abilities, in order to achieve this point by effective ways with high quality and guarantee. Firstly he/she must gain and develop various creative components such as: fluency, originality, flexibility…etc. This is because, as I mentioned before, the components of the previous variables are not working in different ways or directions but working together, with their interaction, perfection and complementary processes reaching a specific point with higher levels of outcomes. So there is a direct relation between creative thinking and emotional intelligence abilities and components.

Goleman (1998) considered school as one place which can work to compensate children's deficiencies in emotional and creative competence. As such schools face the challenge of teaching as well as nurturing the emotional and creative skills of children. Bruner (1996, p.23**)** mentioned in his book "*The Culture of Education"* that "education is not just about conventional school matters like curriculum or standards or testing". What we resolve to do in school only makes sense when considered in the broader context of what society intends to accomplish through its educational investment in the young. How one conceives of education, according to Bruner, is a function of how one conceives of the culture and its aims, professed or otherwise.

The contemporary educational system in the United States appears in some aspects to be inadequate for the purpose of effectively preparing students for success in the twenty-first century. One possible solution has been presented which involves the implementation of certain theoretical concepts of creative thinking and emotional intelligence. It has been posited that these ideas can be inculcated into the already existing curriculum through changes in teaching style and methods of testing without altering the learning and mastery of the basic skills in a given domain of knowledge (Victoria, 2000).

Many technical and humane challenges face schools when they seek to achieve educational strategies and plans in order to achieve a high quality of educational outcomes and results in

the field of creative thinking and emotional intelligence. The main question here is whether school principals have enough satisfaction, acceptance and conviction to apply the modern educational styles and methods to support and enhance scholastic activities and programmes in the fields of creative thinking and emotional intelligence? The answer to this question will determine the educational dimensions of schools in the future whose administrations are looking for more ambition and success in the field of contemporary education.

The fifth hypothesis of that current study is that will be significant effect and interaction of academic specialization and gender on creative thinking among the total sample of present study. To test and detect the effect and interaction between academic specialization and gender on creative thinking among the study sample, I used ANOVA as a suitable technique of statistical analysis . As shown in Table 12, the values of ANOVA for the effect (separately) of academic specialization (literary and scientific) and gender (males and females), and also their interaction together, on creative thinking among the total sample. It is obvious that there is a clear effect of academic specialization, but only on creative thinking and gender, but together there is no specific effect of their interaction on creative thinking. This result supports and confirms just the first part of the fifth hypothesis – that there is an effect of academic specialization and gender on creative thinking among the study sample –, but rejects the second part of the fifth hypothesis – that there is interaction between academic specialization and gender on creative thinking among the study sample. Thus whether a student is in the literary or scientific section of the secondary education major system can have an effect on their creative thinking. Also gender can have be effect on creative thinking. Each of these variables can have an effect on creative thinking without their existence or interaction together, because wherever or whenever both of these previous variables occur together, they have no effect on creative thinking regarding to the study sample. That is why we must take into consideration in future educational visions, plans and strategies these technical points when determining scholastic programmes and activities in the field of creative thinking. This result of the fifth hypothesis needs more investigation and research in future studies with wider samples for the results to be more accurate and valid. It needs to reflect in the end all cognitive and personal dimensions and traits of the selected sample, and to realize in the final vision the reasons why the interaction between academic specialization and gender on creative thinking has no effect. The answer to this question will be very important in our educational future and will support our goals and achievements to be more realistic.

The sixth hypothesis of the current study is that emotional intelligence will be the most important predictor of creative thinking among the total sample of the present study. To examine and clarify the possibility of predicting the best variables of creative thinking, I used a specific statistical analysis method –Stepwise Regression Analysis– with creative thinking as the dependent variable and other variables as independent variables. As shown in Table 14, there is convincing evidence that emotional intelligence alone is statistically significant as a predictor of creative thinking among the total sample of the current study, while there is no statistical significance for critical thinking to predict creative thinking.

This result of Stepwise Regression Analysis supports the results of the third and the fourth hypotheses of the current study about the relationship of creative thinking with critical thinking and emotional intelligence. As I mentioned before, with more details of analyses and discussions on the fourth hypothesis, there is a strong relationship between creative thinking and emotional intelligence regarding their components and interaction together. That is why emotional intelligence is the main predictor of creative thinking. So whenever or wherever we see students with emotional intelligence skills and abilities, we can predict that they also have creative thinking abilities, and that they will be creative people drawing on their emotional intelligence skills and abilities. Emotional intelligence is a very important variable as the main means to discover and predict creative students and educate them by various educational activities and programmes in schools. This result of Stepwise Regression Analysis supports the sixth hypothesis of the current study that emotional intelligence is the most important predictor of creative thinking among the total sample of the present study.

As should be clear from the above discussion, emotional intelligence provides a basis for the kind of creative thinking and problem solving necessary in mastering a skill and developing the capacity for intellectual reasoning. In addition, the capacities enumerated as part of emotional intelligence allow creative thinking to be utilized in interpersonal relationships in the sense of facilitating the capacity for empathy, perspective-taking, putting aside one's own needs in the face of a greater situational need, the ability to 'read' the context of a situation and making appropriate choices (Victoria, 2000). We can observe the interactive and predictive relationship between emotional intelligence and creative thinking not only in schools, but also in various situations and environments. Sam (2012) asserted that emotional intelligence can be applied in various workplaces to facilitate decision making, problem solving, and the pursuit of important life goals. For instance,

emotional intelligence can facilitate creative thinking, which in turn can expand one's options in making important life decisions.

Further research has indicated that an emotionally intelligent person is likely to be skilled in two key areas within the emotional competence framework; namely 'personal competence' – how one manages the self –, and 'social competence'– how one manages relationships (Renuka, 2009). While the former essentially implies self-awareness (of internal states, preferences, resources, and inhibitions), self-regulation (of internal states, impulses and resources) and motivation (traits that facilitate accomplishing goals); the later comprises empathy (the ability to understand others' emotions, and others' talents or skills needed to influence, communicate, lead, develop others, manage conflicts, promote team work, or catalyse change), and social skills such as expertise in inculcating desirable responses in others (Bhalla& Nauriyal, 2004). There is thus no doubt that these abilities and skills of emotional intelligence will support and enhance various components and attitudes of creative thinking on different educational levels and whether in schools or other social environments and situations.

The seventh hypothesis was that application of the project method in the study of agriculture would have effect on the study variables; creative thinking, critical thinking and emotional thinking. To test and determine the effect of project method theory on the variables in the current study. I used t-test as the method of statistical analysis to compare pre- and post scores of the current sample in the study variables. As shown in Table 15, that all t-test values are statistically significant, which means that there is a real and actual positive effect of the project method on the study variables.

This result supports and confirms the seventh hypothesis of the current study. This result also enhances and supports the ideas of the progressive education movement championed by Dewey and Kilpatrick that places the focus and emphasis on the importance of scholastic practice and activities to discover students' various skills, abilities, and attitudes and then educate them by their interaction and involvement together in various scholastic programmes and activities, with the space and freedom of a democratic atmosphere and discussions of their multiple thoughts and opinions.

Sallee (2010) researched the impact of the project approach on young children with disabilities or at-risk children. In the study reported by Salle, mixed methods were used to study the impact of the project approach on the social interactions, challenging behaviours, and language development of

eight selected children in two inclusive classrooms. The child participants were two children with IEPs and two identified as at-risk from each class. Adult participants were six professionals who received high quality support to implement the project approach. The adults were interviewed prior tothe beginning of the study and again during and after implementation. Choice time observations were videotaped twice per week over 14 weeks in order to assess the impact of the project approach on play levels. Results revealed that social interactions, challenging behaviours, and vocabulary, were positively affected by implementation of the project approach.

There is thus no doubt that application of the project method in the school environment will support students' abilities in creative thinking, critical thinking, and emotional intelligence, and probably that the positive effect of the project method will apply not only to these previous variables, but also on other related variables. In Chapter 3 we presented a number of related study results asserting the importance and effectiveness of the project method and such scholastic activities for students. Their results offer strong support and confirmation of our seventh hypothesis (see Min& Yu-Ping, 2002; Yvonne, 2003; Gregory, James& Tracy, 2005; Iris& Matthew, 2007; Sola& Ojo, 2007; Pamela, 2008; Savich, 2008; Benek& Ostrosky, 2009; Sallee& Michaelene, 2009; Yvonne& Josefina, 2009; Bennett, 2010; Dominguez& Jaime, 2010). Advocates of the project method do not suggest that project work should constitute the whole curriculum. Rather, they suggest that it is best seen as complementary to the more formal, systematic parts of the curriculum in the elementary grades, and to the more informal parts of the curriculum for younger children. Project work is not a separate subject, like mathematics; but it provides a context for applying mathematical concepts and skills. Nor is project work an 'add on' to the basics; it should be treated as integral to all the other work included in the curriculum (Liliana, 1994).

Eskrootchi and Oskroch(2010) conducted a study to test the efficacy of project work among 72 students in a quasi-experimental research design. The title of their study was 'A study of the efficacy of project-based learning integrated with computer based simulation (STELLA)'. This study suggests that students learn best by actively constructing knowledge from a combination of experience, interpretation and structured interactions with peers and teachers when using technology. Simulations do not work on their own, there needs to be some structuring of the students' interactions with the simulation to increase effectiveness. The purpose of this study was to investigate the effectiveness of project-based learning in a technology-rich environment. A science project on land-use in watersheds, that takes advantage of the internet, was developed and integrated with a simulation software package, structural thinking and experiential learning

laboratory, with animation (STELLA) developed to promote deeper understanding of land-use by students. Statistical analyses showed that students who participated in the manipulation of the experimental model of the watershed experiment and the STELLA simulation performed best on understanding the watershed concept. More specifically, the results of this study 'indicated that learning in the online PBL group did not have a significant effect on the content knowledge acquisition scores but it had a significant effect on increasing the critical thinking skills'(Eskrootchi& Oskrochi, 2010, p. 242).

Children have a much wider range of capabilities than they have usually been permitted to show in the regular classroom. In order to show these capabilities, they need learning environments that are responsive to the many individual differences that influence learning. Children learn in different ways, have different styles, and build on very different backgrounds of experience. Children also achieve at a higher level in school if they are interested in what they are doing. The project method taps into the children's interests and supports their learning differences. Children are expected to work cooperatively on complex and open-ended tasks as well as following instructions in step-by-step learning. The project method provides one way to introduce a wider range of learning opportunities into the classroom and has a developmental basis. Projects can expand a child's learning (Judy, 2010). Jena (2011) examined high school mathematics teachers' perceptions regarding the need for a constructivist practice resource outlining three constructivist teaching approaches (project, thematic, and reflective writing) within integrated mathematics classrooms in an inner-city school in the southern USA. The research question involved identifying the specific unmet needs faced by these mathematics teachers in providing practical applications of constructivist teaching practices to help students learn through a new integrated mathematics curriculum. The Constructivist Practice Resource Needs Assessment (CPRNA) was used to map a prioritized list of needs based on the responses of 33 of 102 mathematics teachers in this system. Items were ranked using descriptive statistics and then integrated and aligned to a thematic analysis of other research on constructivist practice techniques. These findings were then used to develop a new resource to support local mathematics instruction. The study contributes to social change by informing best practice in mathematics education pedagogy that incorporates more constructivist teaching approaches, which may lead to better prepared students and improved student achievement in the integrated mathematics classroom.

So by practising various project methods in school students will gain many experiences and benefits not only in the field of education, but also in various fields. For instance, in the field of

psychology by their practice and involvement together in many activities and projects, various psychological goals may be attained: facing then treating various phenomena of psychological disorders of students, such as anxiety, depression, loneliness, aggression, psychological phobias, shyness, self confidence, self actualization, self esteem…etc. In the social studies field, students can develop various social attitudes such as leadership, voluntary wors and cooperative participation. Generally, the positive effects and impacts through practising the project method will reflect not only on the cognitive and personality aspects, but also on the academic performance which is the main focus from the student's side whether on the academic level of school or university. For example, Zeegers (2001) found a positive relationship between a deep approach to learning and academic performance in university law undergraduates, as did Snelgrove and Slater (2003) with nursing students.

A recent trend in the learning paradigm emphasizes the socio-cultural aspects of learning which insist that learning is inherently social and situated (Palincsar, 1998), incorporating dynamic processes of individual and social construction of knowledge building (Zhang, Scardamalia, Lamon, Messina & Reeve, 2007). Even though knowledge construction is basically a cognitive process, knowledge is developed through interaction between the knower and the known rather than cumulated in individual minds only (Van Aalst, 2009). Project method is an exemplary model of the social learning perspective (Hmelo-Silver, Chernobilsky& Jordan, 2008).In the project method students with different levels of knowledge and prior experience work together in small groups towards a common goal which is pertinent to their real contexts. Although the project method might be implemented either in individual or in collaborative contexts, considering the notion of Dewey's social aspects of learning, there is no doubt that learners are likely to achieve better outcomes from the project method in collaborative contexts. They are not only able to co-produce project artifacts but also able to co-construct knowledge through social interaction and peer assistance in collaborative project work (Heeok, Kyu& Youngsoo, 2010).

Stephanie (2010) asserted that project-based learning promotes social learning as children practice and become proficient with the twenty-first-century skills of communication, negotiation, and collaboration. As children work on these projects, they must brainstorm ideas and act as good listeners to their group members. Teaching students active listening skills enhances collaborative ability as well as creativity. Students learn the fundamental skills of productive communication, respect for others, and teamwork while generating ideas together. Negotiating how to solve a problem collectively is also part of project based learning. At the end of the project, students do a

self-evaluation. They evaluate not only their learning, but also the success of their social interactions. They reflect on their communication skills, if they felt they listened well to other students' ideas, and if they believed their own opinions were heard. Consistent employment and practice of these skills will strengthen them over time and lead to proficiency and mastery. These skills are critical to future success in the structures of our global economy.

That is why the project method is considered one of the most important educational methods to apply in Kuwaiti schools if we want to achieve a higher quality of educational outcomes in various levels.

CHAPTER 7

APPLICATIONS AND CONSEQUENCES FOR PRACTICE

Chapter 7

Applications and Consequences for Practice

In the preceding chapter, the interpretation of the results and discussion has been reported. In this chapter, applications of the study and consequences for practice are presented.

7.1. Applications

To the best of my knowledge, and according to my previous research and surveys of various Arabic databases, dissertations and references looking for any title about the project method theory of Kilpatrick, this study is unique in its title, methodology, variables and dimensions This is the first study in an Arabian educational culture and environment attempting to investigate the effect of project method on the three variables of creative thinking, critical thinking, and emotional intelligence among secondary school students. Thus, I will attempt to figure out the applications derived from the finding of the current study. Furthermore, I will try to derive certain points for further research based on these findings.

The study revealed that there is no differences whether gender or academic specialization on the study variables of creative thinking, critical thinking and emotional intelligence among the total sample of the current study. Based on the present findings, and as mentioned before that most of the scholastic activities and programmes in the secondary schools whether for males or females in the scientific section or literary section are similar by their dimensions, nature, administrations…etc, moreover, the similarity between the surrounding environments whether among males or females in the both academic sections. In other words there are no differences between t-test values of gender and academic specialization among the total sample.

Actually developmental psychology has contended that creative and critical thinking and also emotional intelligence abilities and skills could be learned and enhanced. But the main concern here is how to adopt, design and implement scholastic activities, programmes and curricula in which students can be taught to think positively, differently, creatively and critically. This point leads us to the essential thoughts of the progressive educational movement advocated by Dewey and Kilpatrick that focus on the importance of a democratic environment among students to develop and enhance their various abilities and skills. Thus we can break down the traditional scholastic class, curricula,

life and routine by opening new windows on the modern styles of progressive education thoughts, but are there clear strategies and plans to adopt such changes? Are teachers aware and convinced of the fact that creativity and critical thinking with emotional intelligence can be learned and nurtured? Generally, our educational and family systems do not address creativity or other cognitive abilities in our children. Rather, they focus on the memorization of information and converging thinking. So schools and families can play significant roles in developing activities for creative and critical thinking and emotional intelligence, provided that they employ educationally sound techniques that can have potential of enhancing creative processes.

The t-test results indicate and reflect some indicators, such as that the current educational environment and the educational policy makers and planners did not take the main important point into consideration, which is the individual differences as they appear from the among scores based on gender or academic specialization among the study variables. That is why there are no differences among their scores in the previous variables.

There is no doubt of the great educational and psychological importance of individual differences in various educational situations among all scholastic educational levels, due to individual differences and that we can discover, education and support various creative, critical and emotional abilities and skills. So through the results of the first and second hypotheses, we can derive some educational and psychological applications for the importance of determining the individual differences. We should take this point into consideration before any students start projects and programmes, supporting and enhancing the creative students in respect of their creative abilities, create various educational situations that will discover and support creative abilities and skills among students in the various scholastic levels, and support teachers in order to create new democratic methods and effective teaching.

From the results of the third and the fourth hypotheses, we can derive many educational applications for various situations among students. Whereas there is no relationship between creative thinking and critical thinking among the total sample of this study, there is a positive relationship between creative thinking and emotional intelligence. These results raise the main educational question about the reason why there is no relationship between creative thinking and critical thinking, although I have already discussed this point before. In future studies, samples should be wider and have more variety. Their results will then have more reliability, and that will reflect the dimensions of relationship between creative thinking and critical thinking, probably some of the limitations have already

reflected on its results as no relationship between creative thinking and critical thinking, but in all cases as this point has not confirmed yet, because as I mentioned before we need more studies in the future with widely and variety sample and tools to get decisive result among the relationship between creative thinking and critical thinking ….as the result of the relationship between creative thinking and emotional intelligence among the total sample of this study. The applications of this result will oblige us to take the importance of this relationship into consideration through our educational strategies and plans in various scholastic levels starting from kindergarten.

As I mentioned before in chapter 6 on the interpretation of results, there is a mutual relationship between creative thinking and emotional intelligence by the interaction between both components and skills. So when we devise general educational scholastic activities, we should include in these activities various creative and emotional aspects, experiences, and situations to gain better educational outcomes, thus build students who can use their creative and emotional abilities and skills in various ambiguous situations in their surrounding environments. So in the education system there should be not only theoretical knowledge or information, but also a combination of theoretical and applied aspects.

The first thing to do to promote the creative and critical processes is to modify the expectations within a classroom, in order to create some time in the curriculum for alternative learning in the classroom. We cannot expect the children to be active divergent thinkers in an atmosphere they associate with passive and convergent problem solving. For example, we would accomplish beginnings of stories, unique uses of common objects, while at the same time we still require them to sit up straight, raise their hands before answering. Wilson (1958) has suggested that the classroom is an essential first condition to enhance creativity.

Psychological safety precedes psychological freedom in the classroom. Pupils' anxiety level should be relatively low. We cannot expect pupils to brainstorm if they fear the teachers will adversely judge the quality of their products. Torrance and Myers (1970) mentioned that the child should be taught to produce and test his or her own ideas in order to participate in life. So as these procedures and techniques will support and enhance students in various scholastic levels to build their creative and critical abilities and skills, and then the possibility to build the personality of student who can face his/her challenges and situations in modern society.

Marlow (2000) emphasized that there are selected philosophies of teaching which might well assist teachers to improve instruction. For instance, the project method which he defined as an activity-

centred approach whereby pupils with teacher's assistance are fully involved in planning the curriculum. Moreover, there is humanism, in which the focal point is on the pupil in planning the curriculum, but may not necessarily be an activity-centred curriculum. Additionally, there is problem solving which stresses a practical curriculum in which school and society are one, not separate entities. The teacher needs to analyse each philosophy and stress those which assist individual pupils to achieve as well as possible. Generally, for teachers to achieve their educational objectives they should focus their views on the project method as the main direction of the contemporary educational movement.

Based on result of the fifth hypothesis, we can notice that there is an effect (separately) of academic specialization and gender on creative thinking, while there is no effect from the interaction among these variables together on creative thinking. This result is very important for educational policy makers and planners, because they should take this finding into consideration and also the direction of previous results about the effects on creative thinking. These points will oblige us to design and formulate our scholastic creative activities and programmes in a specific direction regarding the traits of academic specialization and gender without its interaction.

The project method will give us higher level of guarantee of educational outcomes with high quality of creativity. From the psychological aspect it is very important to study the characteristics of growth phases of students from the kindergarten level to the end of their school life, because according to these characteristics, we can formulate and design any kind of scholastic activities and programmes to get creative outcomes and results through supporting and educating various of students' creative abilities and skills appropriate to each phase of growth.

Also teachers should be aware about this point and they are supposed to be aware of the psychological and educational background of their work in the school, to have a general realization about educational process by understanding the educational and psychological characteristics of growth phases and individual differences. By this thinking, when policy makers design any student activities and programmes, they must take into consideration the cognitive and creative characteristics of both scientific section and literary majors as academic specialization. As explained above, in Kuwait, when the student finishes tenth grade, he or she must select either the scientific or literary section as his or her academic specialization until the end of twelfth grade then he/she will enter the university level with this major.

As a matter of fact, whether in the scientific or literary section, for each section, there are many different cognitive and creative characteristics, and educational policy makers and planners should be aware about these characteristics, because it will reflect in the end on the nature and directions of our educating and supporting for our students to discover and enhance their creative abilities and skills.

Based on the result of the sixth hypothesis, there is convincing evidence that emotional intelligence is the main and the most important predictor of creative thinking. As I mentioned above, there are various components of both previous variables which are working together with its interaction to create and educate talented and creative people who can develop society. These individuals need specific characteristics of creative and emotional programmes and activities that can offer them various creative and emotional benefits and experiences. This is achieved through practical work and involving students with each other in many scholastic activities with a democratic atmosphere in the scholastic environment, open-minded teachers who can support the thoughts of progressive movement…etc. Thus the specific content of curricula and scholastic activities and programmes should include kinds of emotional skills and abilities, because such skills and abilities will support and facilitate creative abilities. That is why emotional intelligence is the main important predictor of creative thinking.

The result of testing the seventh hypothesis confirms the effect of the project method on the study variables of creative thinking, critical thinking and emotional intelligence among the total sample of the current study. Based on Chapters1 and 2,that consisted of more details and dimensions of project method theory, additionally, I can confirm this result based on chapter 3also, which included various related studies which support and confirm the effectiveness of the project method using various scholastic activities and programmes.

There is strong effect on the study variables from the project method in the area of teaching agriculture. This result should change the educational future view with several educational plans and strategies for educational policy makers and planners, if we want to create a strong base for our societies to develop and support creative humane productions starting from infancy in the kindergarten until the student is at the university level.

There is no doubt that most of our normal curricula consist of theoretical and knowledge aspects without focus on the applied or practical or cognitive aspects which enhance and support kinds of mental abilities such as creative, critical and emotional abilities that can build the individual to face many challenges in his society. A project method and curriculum for creativity, divergent and critical

thinking cannot be fitted in a single classroom exercise. Instead, a series of connected experiences is necessary if only to break the student's expectations that the teachers are still looking for the correct answer.

Cole and Parsons (1974) affirmed that there is a need for teachers to enhance the creative and other cognitive thinking development of students by providing recognition, initiating and rewarding responsive behaviours. As indicated by Prince (1975), not all teachers can be expected to be attracted to responsive students. Many children have aptitudes for learning creativity that they can learn more if freed to use their creative thinking and abilities. They make little progress under teachers who insist upon learning by authority. The children cannot progress under teachers imposing authority without freedom to use creative thinking powers.

The main question is how we can convince school principals to apply the project method among their students to gain creative or critical or emotional outcomes. The principal is considered the main person in the school, who can support and confirm any kinds of scholastic projects and activities if he/she wants to build and create new educational system in the school according to the thoughts of educational progressive movement by Dewey and Kilpatrick.

For instance; when school leaders create high expectations for student learning, just as important are expectations for adult behaviour and responsibility for that learning. In short, teachers' collaboration and professional communities need to be rooted in a school climate that 'encourages levels of students' effort above and beyond the levels [that might otherwise] be encouraged in individual classrooms' (Louis, Leithwood, Wahlstrom, & Anderson, 2010, p. 37). Research has long supported the conclusion that schools where students excel academically are characterized by shared expectations among administrators, teachers, students, and families about the centrality of student learning (Hill, Foster & Gendler, 1990).

The role of head teachers is to create high performance expectations, communicating those goals, and fostering group acceptance (Fullan, 2003), and through these steps, to lead students in the school to create their mental abilities and personalities. The head teacher of a school should challenge many educational modern systems and movements, the dimensions of his/her work is not only as leader of school sitting behind the disk, but also should be focused on various aspects of the school whether students, teachers, curricula, the activities…etc. While challenging schools come with an array of difficulties for teachers, many educators truly want to work in such places if there is well-rounded leadership.

Such desired leadership includes head teachers who will build relationships, advocate for teachers, include teachers in their decision-making processes, empower the staff, build leadership capacity within their school, allow opportunities for teachers to grow, be accessible to teachers, provide individual and team planning time, and ensure a mix of both new and experienced teachers within each team (Greenlee & Brown, 2009).

A head teacher who provides some or all of these opportunities to their teachers was preferred by teachers in one study, even over added bonuses to get them to stay. The majority did not place emphasis on bonuses or increased salaries as determining factors behind their retention; rather, most teachers feel that the leadership within the school is the most important in deciding whether or not to stay at a challenging school (Katherine, 2011).

As a result of these demands, educators are rethinking their ideas about what needs to be done in schools and by whom (Schlechty, 1997). Teachers are being asked to rethink how teaching and learning occur in schools by embracing the concepts of diverse learning styles and practising instructional variety (Gardner, 1999b). They also are being encouraged to use learner-centred versus teacher-centred assessment strategies (Austin, 1994), and to reintegrate teaching and learning within peer, family, and community social networks (Benson & Barnett, 1999).

It is very important that teaching should generate creative enthusiasm, enhance concentration and favour creativity, which are very distinct, but somehow interconnected phenomena (Daniel, Stephane, & Paraskevi, 2009). Rieber and Noah (1998) convincingly argue that the learning process itself – and not just the result – should be interesting, if one seeks higher motivation among learners. 'Serious play' or 'hard fun' refers to intense learning situations where learners are investing a lot of 'energy' and time, that provide equally intensive pleasure at certain moments which have been identified as 'flow' or 'optimal experience'.

Headmasters also are being invited to rethink their roles concerning how they should lead their staff and how staff roles and relationships should be organized. One popular new leadership model is to create 'schools that learn' (Senge et al., 2000), where decision-making is actively shared between staff, students, and their families (Fullan, 2001). Head teachers also are being challenged to rethink the boundaries of their school by developing school-based full-service centres (Dryfoos, 1994) or by supporting the development of community coordinating teams of service providers (Adelman& Taylor, 2001) so as to give students greater access to mental health services.

There is no doubt that the greatest burden of identifying work methodology lies on the shoulders of the head teacher with the cooperation with teachers and educational supervisors. Since the head teacher is required to create a creative school environment, his or her first task is to participate with teachers in diagnosing the current status of the school from all aspects, identifying desired aims and strategies, and outlining techniques and priorities in the light of the available resources.

Taylor (1972) indicated that teachers used to focus on only one aspect of pupil competence, namely, the academic side. Hundreds of ways can be mentioned in which teaching deliberately or even accidentally reinforces non-creativity. As a matter of fact, the scholastic curricula in the State of Kuwait do not encourage creative, critical and emotional abilities and divergent thinking through admission of openness and democracy in giving opinions or questions or brain storming. Rather it depends on memorizing and theoretical aspects more than applied and practical aspects.

The school environment covers the overall school atmosphere, the classroom atmosphere, the philosophy and the objectives of the school, learning recourses and detection of the talented and evaluation techniques. Osborn (1980) suggested that the classroom is one of the fundamental places that is significant to encourage the atmosphere of creativity. What is also of greatest importance to the investigation of creativity and other thinking styles is examination of the psychological influences that may reflect on thinking styles, such as fear and anxiety and other psychological disorders. Such influences are theoretically expected to enhance creativity, critical and emotional abilities and skills.

The project method appears to be an effective way to support the learning of diverse learners. Professional development opportunities that emphasize characteristics of the project method that other teachers have found helpful may be beneficial to teachers who are new to the approach. Listening to the voices of early childhood teachers who have learned about and attempted implementation of the project method can move the field forward in designing professional development opportunities that represent recommended practice and support the learning and development of diverse groups of young children (Beneke& Ostrosky, 2009).

So if we are looking to popularize project method theory in our schools in order to achieve high quality creative outcomes, we should find first a creative leader then a creative school administration with a creative teacher, otherwise we will continue in the traditional educational system with its very limited educational outcomes.

7.2. Consequences for Practice

There are no complete and perfect projects without any challenges that will appear during implementation, because whatever we do or prepare or arrange to get high and full quality of outcomes and results for our projects, there will be some unexpected challenges that emerge before or during practising the project. It is not problem to emerge as these challenges, but the main point is how we can face these challenges.

I have observed some challenges as my personal experiences that will be very important for the next and future studies in similar field a researcher take into consideration. These challenges as follows:

i. Some teachers do not have enough educational and technical background in dealing and practising with project method theory. So it is very important to arrange short theoretical and practical lessons about the project method for the teachers in order to support their cognitive and creative abilities that will reflect in the end on the results they achieve using the project method;

ii. Insufficient budget and financial support to obtain and purchase various materials regarding to practice in the units of project methods as mentioned before. In this case study, these materials were fertilizer, sands, plastic sheeting, seeds, agricultural tools, and gifts and souvenirs for students and teachers for their participation in the project in order to support and encourage them for present and future projects…etc. I was obliged provide the schools with these materials out of my own pocket, otherwise these school did not have enough finance for them;

iii. A democratic principal is very important to apply, follow-up and evaluate my project in the schools. Some principals were uncooperative and without democratic characteristics on which I depend to get a high quality of educational results from my project. Dealing and cooperation with a democratic principal will support me and I can find all technical and educational facilities in the school during the administration the units of my project;

iv. Not enough free time for follow-up and practising the units of the project method among students, because most the scholastic day was taken up with attending classes. More free time during the school day would help students to follow-up and complete their project with less

anxiety. Also, more free time would support them to discover, build and support their creative abilities by involvement and exchanging various experiences between students and their teachers; and

v. The scholastic student record means that it is very important to support and enhance various students' abilities while they practise in the project method, because the schools register specific marks for students those engaged in projects, and these marks are added into the general results for the students.

7.3. Limitations and Suggestions for Further Research

In the previous section the applications of current study results had been discussed. In this section, limitations and suggestions for further research are presented and discussed.

7.3.1. Limitations

It should be mentioned that the findings of the present investigation have some limitations. It should be emphasized that the findings of the current investigation should be generalized within the particular population from which the sample was drawn. The participants were boys and girls in eleventh and twelfth grade public secondary schools in the State of Kuwait.

Regarding to the levels of the participants, it is a limitation that the participants were just from the academic levels of eleventh and twelfth grade and did not include other levels. For each level there will be specific growth characteristics that will reflect and effect on students 'practice in the project method. So if this study had included four academic years (ninth, tenth, eleventh and twelfth), then it would have been possible to make comparison by t-test analysis and also pre-post analysis between these levels. I feel sure that its results would enrich the current study. The project method theory is applied or the first time in the State of Kuwait by the current researcher, and there is no more educational background or related or previous projects method that have already been administrated in this environment from which I can get various educational and techniques experiences and benefits. Additionally, we can realize the negative and positive aspects of previous administration of project method, that is why it is not logical to cover the first administration of this study at various academic levels without consideration its side effects. I will get more educational benefits and experiences from this study if I follow the gradual steps and procedures to apply this study.

The same is true for the nationalities of the students in the sample, actually all of them were Kuwaiti citizens attending government schools. The limitation point here is that the current study covered and was confined only to Kuwaiti students not other nationalities. If this study had covered non-governmental schools also, then students of other nationalities could be studied, because government schools are attended mostly by citizens, and at the same time, most non-government schools are for foreign students. So the possibility to make comparison by t-test analysis between various nationalities of students in the effects on them of the project method, could make the current investigation richer and deeper. Here I would like to indicate the same justifications as mentioned above for why the current study has not covered various academic levels in the schools.

Another limitation is that this study just covered and was confined to one province, Al-Farwanyah Province, out of the six provinces in Kuwait. Generally, for each province there are specific demographic characteristics, and the results of current study would be enriched if the study included more than one province to make comparison between students in each province in project method and study variables. But I would like to mention here same justifications as mentioned before.

The last limitation is that the current study used three main variables; creative thinking, critical thinking and emotional intelligence. It would be better if there were more than three variables in this study. It is because there no other related or previous studies of project method theory in Arabian or Kuwaiti educational environments and culture, that I selected only three variables to be under study. The results of the current study will open new educational directions for more studies in the future with more and various variables with administrations of project method theory in various scholastic levels.

7.3.2. Suggestions for Further Research

A diversity of approaches and techniques have been adopted to study project method theory and an increasing number of persons concerned with it. Over many years of research and development, project method theory has continued to be a topic of considerable interest and concern to educators as well as to social, educational and behavioural scientists and researchers, regarding its positive effects not only among students, but also among all the sectors in the society. Unfortunately, I cannot see these interests or a focus on project method theory in Arabian educational environments

or culture, because it depends on the educational system whether we are still following traditional educational system, or we do not have a greater educational vision in the future or we do not want to open our educational windows on the educationally developed countries…etc.

The Arabian educational culture and system needs a strong educational revolution to change and renew the traditional educational methodologies and curricula to make them more interesting and attractive to discover, enhance and support various whether creative or other thinking skills and abilities to create generations that can build and develop their societies. Substantial progress has been made in our understanding of the nature, assessment of creative and other thinking styles, it is still a field which offers many and varied opportunities for research and development. People are undoubtedly becoming aware of the importance of building thinking styles in many aspects of social and educational life and situations and are investigating the subject from varied points of view.

We cannot achieve our educational strategies or build creative abilities in our students without adopting a specific educational system or methodology in order to translate our objective to real life. Project method theory is one of these systems that will support our educational system to enrich scholastic outcomes by its educational and psychological dimensions and effects. Many previous and related studies, as mentioned before in chapter 3, have asserted the importance of the project method to foster creative personal with critical and emotional abilities. It is widely accepted that the field of developing many thinking and mental abilities and skills is in dynamic state, full of complexity and challenges, and a clear crystallization is something of an impossibility. This complexity and the present uncertainty of concepts and conflicts of results should occasion more rigorous and varied investigations rather than foreclosing of inquiry through single-minded espousal of one's own view (Getzels& Csikszentmihalyi, 1976).Khatena's (1975) observation is useful, that we are going to make mistake in identifying and in interpreting it, but our whole human existence is based on mistakes and their corrections.

The fact that so many people have so many ideas about support creativity and other mental abilities means that we have a richer field to plough, and this is the cause for rejoicing. In any field of activity, particularly such areas as creativity where problems are immense and obstacles enormous, various issues and perspectives can be described as there are always segments of reality, to use the language of linguistically oriented psychologists and educators.

Different countries, especially Arabian countries, should think of their issues and needs for research in creativity and critical thinking, additionally emotional intelligence and other thinking styles, keeping in view their own demands and priorities, as there is a multiplicity of problems needing research everywhere. Research in advanced countries should help in the mobilization of talent, and provide directions for the means and ways people can cultivate, liberate and express their slumbering creativity and other cognitive abilities. Advanced countries have to be more vigorous in ensuring that creative, critical and emotional skills will soon be known rather than unknown. Cognitive abilities can be studied in many ways, all rewarding in various degrees.

New dimensions are constantly being discovered and added to the ones who had already known (Arieti, 1976). Research in different countries can look at creativity and other thinking styles from different vantage points and pursue some tangible leads at this relatively early period of scientific research in this field in their countries. Generally, the relationship between project method theory and other variables is still arousing lot of interest among researchers, because in different studies, as mentioned before, different kinds of relationships are observed. In some cases negative relationships are also found. So more research should be conducted by using different reliable and valid tools to measures creative thinking, critical thinking, emotional intelligence and other thinking and intelligence styles.

The relations would be clearer if the creative and critical thinking with emotional intelligence abilities of the retarded children and adolescents are studied. Research in this area will be able to reveal the relationship between project method theory and previous variables of current study with also other variables among the retarded or mentally handicapped group. Any psychological traits are a function of heredity and environment. It would be of interest to note whether creativity with other thinking variables are more related to the genetic factor or the environmental factor through practising with various project methods.

There are various ways of measuring the effect and relationship of project method theory with different cognitive and personal variables among children or adolescents. The scores obtained intesting the variables depend on the nature, dimensions and components of the tests and the conditions under which tests are being administered. There are a number of suitable measures to test the effectiveness of project method theory and realize its relation with other variables as

administration traditional tests, projectivity tests, observation…etc. For each one of these kinds of specific dimensions and instructions we can get various information and indications of the effectiveness of project method theory.

There is no doubt that we have an urgent and immediate need to construct a more suitable measuring technique in order to measure and understand the nature of project method theory and to assess the true creative and other thinking styles abilities. The construction of tests should be valid and reliable, so that it can be of help to future investigators especially in the Arabian societies. While conducting this research, the current investigator felt that the field of research in project method theory was wide open and many more studies were necessary to bring forth knowledge about the nature and dimensions of this theory in our societies.

In the light of my experience, the following suggestions for further researchers could be made. These suggestions may not be limited to the State of Kuwait, they can be considered by researchers in other countries also:

i. Develop studies of project method training programme for children and study its effect on various aspects of children's cognitive and personal abilities. It has been found in many studies that training enhances the outcomes;

ii. Study children's creativity as related to their parents' creativity in order to determine the hereditary aspect of creative, critical and emotional abilities, then the academic implementations of project method theory to explore then support this aspect;

iii. Study the creativity of the teacher as related to the creativity of the students and determine the positive aspects of teacher-student interactions towards the development of the educational outcomes;

iv. Develop more tools by conducting various psychological and educational studies for measuring scientific, artistic and literary aspects in project method that will support educators and researchers to classify talented and creative children and adolescents regarding to their abilities;

v. Study the environment of family and school; the quality of teachers, extracurricular activities and project methods performed by the students as related to their creativity, critical and emotional development;

vi. Conduct cross-cultural studies on the project method among children, adolescents and adults in order to find out whether the cultures of different countries have anything to do with the development of creative, critical and emotional abilities;

vii. Conduct longitudinal studies for determining personal, cognitive and demographic characteristics that contribute to the project method among children and adolescents;

viii. Conduct studies to investigate the effect of the project method on development and support of some social values and variables as leadership, volunteering, cooperation;

ix. Conduct further studies to investigate the effect of project method theory on development of the variables of current study – creative thinking, critical thinking and emotional intelligence – but through bigger sample and different educational and demographic characteristics such as nationality, educational background of parents, socioeconomic background, culture, age, gender, environment, academic achievement, extracurricular activities, and achievement motivation;

x. Conduct predictive studies on the project method theory to determine the best set of variables as predictors of creative thinking, critical thinking and emotional intelligence; and

xi. Conduct field studies to explore the main family, social and scholastic obstacle factors for implementation of the project method theory in schools.

REFERENCES

REFERENCES

Abdel-Ghafar, A. (1976). The mental superiority and creativity. Cairo: The Arabian Press.

Abdel-Ghafar, A. (1979). The creativity. Qatar National Journal for Education, Culture and Science, 31, 25-30.

Abdulah, U. A. (1998). Future strategy to develop the education system in Kuwait till 2025. Ministry of Education: Ministry Press.

Abo-Hatab, F. (1996). The mental abilities. Cairo: The Anglo Press.

Abraham, A. (2006).The need for integration of emotional intelligence skills in business education. Business Renaissance Quarterly, 1(3), 65-79.

Achilles, C. M., & Hoover, S. P. (1996). Exploring problem-based learning (PBL) in grades 6-12. Paper Presented at the Annual Meeting of the Mid-South Educational Research Association, Tuscaloosa, AL.

Adelman, H., & Taylor, L. (2001). Framing new directions for school counselors, psychologists, and social workers. Los Angeles: Center for Mental Health in Schools.

Ahmad, C. (2006). Education projects policy. Qatar: Al-Salam Press.

Ahmad, D. (2009). The history of education in Arabian Gulf. Kuwait: Fafad Press.

Ahmad, F. L. (2007). Brief history of Kuwait. Kuwait: Al-Ahram Press.

Ahmad, K. (2010). Secondary stage document. Ministry of Education. Kuwait: Ministry Pres.

Ahmad, M. E. (1995). The education sources in school. Journal of Education, 13(5), 24-41.

Agbari, A. (2004). Scholastic administration: The dimensions of contemporary planning and organization. Beirut: Al-Nahda Al-Arabia Publishing House.

Aghayan, C., Schellhass, A., Wayne, A., Burts, D. C., Buchanan, T. K., & Benedict, J. (2005). Project Katrina. Journal of Early Childhood Research& Practice, 7 (2), Retrieved March 3, 2012, from http://ecrp.Uiuc.edu/v7n2/aghayan.html.

Al-Abdellah, E. (1991).The styles of creative thinking. The Annual Conference of Ministry of Education, Manama, (May, 14th -18th).

AL-Alosy, B. (1985). The scholastic education styles in development the creative thinking abilities. Journal of Arabian Gulf, 15, 71-89.

Al-Barak, A. (2001). The scholastic creative activities. Kuwait, Ministry of Education: Ministry Press.

Albert, H. B. (1927). A study of the project method in education. Columbus: Ohio State University Press.

Al-Deriny, H. (1975). The creativity, it concept and development. Journal of Art Faculty, 1, 161- 171

Al-Ghamdi, R. (1998). The concept school activities. Ministry of Education, Saudi Arabia: Ministry Press.

Al- Hamouly, T. (1996). The intelligence. Manama: Education Group Press.

Al-Hefni, A. (2002). Encyclopedia of psychology schools. Cairo: Atlas Press.

Ali, M. A. (2000). The effect of interaction between some cognitive style and some thinking styles on creative performance among secondary school students in Kuwait. Published Master Thesis, Tanta University, Cairo.

Ali, M. A. (2005). Psychology of creative thinking in school activities. Ministry of Education, Kuwait: Ministry Press.

Ali, M. A. (2007a). Future school. Kuwait: Al-Jawhara Press.

Ali, M. A. (2007b). Importance of school activities. Paper Presented at the Educational Work Shop for Teachers of Ministry of Education (2^{nd} -5^{th} April), Kuwait.

Ali, M. N. (2011). Kuwait and modern history. Kuwait: Al-Salam Press.

Al-Khalifey, E. (1989). The education of creativity and the general teaching. Journal of Education, 3, 1-19.

Alla-Aldein, K. (1983). The obstacles of critical thinking. Journal of Education Faculty, 2 (2), 219- 236.

Alrabi'a, T. (2006). Emotional Intelligence Test. Aman: Al-Ershad Press.

Al-Sayed, F. (1996). Psychology of statistic. Cairo: The Arabian Press.

Al-Sherida, S., & Ali, M. (2001). Scholastic activities and creative thinking among secondary stage students. Journal of Ministry of Education, 2.

Alya, K. (2010). Annual report of education in state of Kuwait. Ministry of education. Kuwait: Ministry Press.

Anderson, G. L. (1998). Toward authentic participation: Deconstructing the discourses of participatory reforms in education. American Educational Research Journal, 35(4), 571-603.

Anderson, L. W., & Bourke, S.F. (2000). Assessing effective characteristics in the schools. New Jersey: Lawrence Erlbaum Associates Publishers.

Andres, M. D. (2009). The transnational and national dimensions of pedagogical ideas: The case of the project method, 1918–1939. Journal of Paedagogica Historica, 45(4-5), 561-584.

Angula, A. J. (2009). William Barton Rogers and the idea of MIT. Baltimore: The Johns Hopkins University Press.

Ann-Marie, C. (2008). Changing classroom practice to include the project method. Journal of Early Childhood Research & Practice, 8 (2), 4 – 20.

Anouk, U., & Diane. P. (2010). Students decision-making process during a sustainable development project. International Journal of Sustainable Development & World Ecology, 17(1), 39-47.

Apel, H. J., & Knoll, M. (2001) Project learner, foundation and tutorials. Munchen: Oldenbourg Verlag.

Arieti, S (1976). Creativity in magic syntheses. New York: Basic Book.

Atia, A. (2006). Factorial study of creativity ability for the elementary. Unpublished Ph.D Thesis, Education Faculty, Cairo University, Cairo.

Austin, T. (1994). Changing the view: Student-led parent conferences. Portsmouth, NH: Heinemann.

Bailin, S. (1993). Problems in conceptualizing good thinking. American Behavioral Scientist, 37(1), 156-163.

Balasooriya, C. D., Hughes C., & Toohey S. (2009). Impact of a new integrated medicine program on students' approaches to learning. Higher Education Research & Development 28(3), 289-302.

Barab, S. A., Thomas, M. K., & Merrill, H. (2001). Online learning: From information dissemination to fostering collaboration. Journal of Interactive Learning Research, 12 (1), 1052.

Barach, J., & Eckhardt, D. (2007). Leadership and the job of the executive. Westport. CT: Quorum Books.

Barak, M., & Maymon T. (1998). Aspects of teamwork observed in a technological task in junior high schools. Journal of Technology Education, 9(2), 3e Le

Barbara, K., & Julie, L. (2001). Applying emotional intelligence: Exploring the promoting alternative thinking strategies curriculum. Journal of Educational Psychology in practice, 20 (3).

Barlex, D. (2002). The relationship between science and design and technology in the secondary school curriculum in England. In: I. Mottier, & M. J. De-Vries (Eds.), Proceedings of the PATT12 Conference, 3

Barlow, D. H. (1985). Clinical handbook of psychological disorders: A step by step treatment manual. New York: Guilford Press.

Bar-On, R. (2000). Emotional and social intelligence: Insights from the emotional quotient inventory (EQ-I). In R. Bar-On & J. Parker (Eds.), Handbook of emotional intelligence (pp. 363-388). San Francisco, CA: Jossey-Bass.

Barrak, A. (2001). School activities: Objectives and implementation. Ministry of Education, Kuwait: Ministry Press.

Barrett, L. F., & Gross, J. J. (2001). Emotional intelligence: A process model of emotion representation and regulation. In T. J. Mayne., & Bonanno G. A. (Eds.), Emotions: Current issues and future directions (pp. 286-310). New York NY: Guilford Press.

Barron, F. (1961). Creative vision and expression in writing and painting. Washington: NC.

Bartzer, S. (2001). The development of creative thinking through an adequate engineering education. In T. Clausen (Ed.), Proceedings of international conference on engineering education (pp. 18-22). Oslo, Norway: Retrieved September 15, 2010, from http://www.ineer. Org/ Events/ ICEE2001/Proceedings/papers/ 398. pdf.

Bayazit, I., & Gray, E. (2004). Understanding inverse functions: The relationship between teaching practice and student learning. In M. J. Honies, & A. B. Fuglestad (Eds.), Proceedings of the 28th Conference of the International Group for the Psychology of Mathematics Education (Vol. 2) (pp. 103-110). Bergen, Norway: International Group for the Psychology of Mathematics Education.

Beneke, S. (2000). Implementing the project approach in part- time early childhood education programs. Journal of Early Childhood Research & Practice, 2 (1), 32-42.

Beneke, S., & Ostrosky, M. M. (2009). Teachers' views of the efficacy of incorporating the project approach into classroom practice with diverse learners. Journal of Early Childhood Research & Practice, 11 (1), 12-21,

Bennet, M., & Knight, M. (1996). Children's understanding of the distinction between real and apparent emotions: A training study. The Journal of Genetic Psychology, 157 (3), 267-274.

Bennett, S. (2010). Investigating strategies for using related cases to support design problem solving. Educational Technology Research and Development, 58 (4), 459-480.

Benson, B., & Barnett, S. (1999). Student-led conferencing using showcase portfolios. Thousand Oaks, CA: Corwin Press.

Bert, J. (2002). Progressive education. New York: J. K. Publishers.

Bhalla, S., & Nauriyal, D. K. (2004). Emotional intelligence: The emergency paradigm in personnel dynamics. Psychological Studies, 49 (2), 97-106.

Bilal, C., Tamer K., Mahmut, A., & Sebahattin, D. (2010). The emotional intelligence of students who are sitting a special-ability examination. Journal of Social Behavior and Personality, 38 (8), 1123-1131.

Binet, A., & Simon, T. (1916). The development of intelligence in children. Baltimore: Williams & Wilkins.

Bizman, B. (1990). Creative mind. New York: Basic Book.

Bleedorn, B. D. (1993). Toward an integration of creative and critical thinking. American Behavioral Scientist, 37(1), 10-2.

Blumenfeld, P., Krajcik, J., Marx, R. W., & Soloway, E. (1994). A collaborative model for helping science teachers learn project-based instruction. Elementary School Journal, 94(5), 483-498.

Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. Educational Psychologist, 26 (3& 4), 369-398.

Boaz, S. (2010). Do extra-curricular activities in schools improve educational outcomes? A critical review and meta-analysis of the literature. International Review Education, 56 (5-6), 591- 612.

Bode, B. H. (1927). Modern educational theories. New York: Macmillan.

Boyatzis, R. E., Cowan, S. S., & Kolb, D. A. (1995). Innovations in professional education: Steps on a journey to learning. San Francisco: Jossey-Bass.

Britannica Encyclopedia. (1981). Carleton W. Washburne. Retrieved May 3, 2012, from http://www.britannica.com/EBchecked/topic/636285/Carlton-W-Washburne.

Broadbear, J. T. (2003). Essential elements of lessons designed to promote critical thinking. Journal of Scholarship of Teaching and Learning, 3 (3), 1-8.

Brody, N. (1992). Intelligence. New York: Academic Press.

Bronfenbrenner, U., & Morris, P. (1998). The ecology of developmental processes. In R. M. Lerner (Ed.), Handbook of child psychology. Theoretical models of human development (5 ed., Vol. 1, pp. 993-1028). New York: J. Wiley.

Brookfield, S. D. (1987): Developing critical think: Challenging adult to explore alternative ways of thinking and acting. San Francisco: Jossey Bass Publishers.

Brookfield, S. D. (1993): Self directed learning. Policy clarity and the critical practice of adult education. Adult Education Quarterly, 43(4), 227-242.

Brouette, S. (2008). Building "Bob": A Project exploring the human body at Western Illinois University Preschool Center. Journal of Early Childhood Research& Practice, 10(2), Retrieved March 12, 2012, from http://ecrp.uiuc.edu/v10n12/brouette.html.

Brown, B. B., & Theobald, W. (1998). Learning contexts beyond the classroom: Extracurricular activities, community organizations, and peer groups. In K. Borman & B. Schneider (Eds.), The adolescent years: Social influences and educational challenges: Ninety-seventh yearbook of the National Society for the Study of Education, Part I (pp. 109-141). Chicago, IL: The National Society for the Study of Education.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. Educational Researcher, 18(l), 32-42.

Bruner, J. (1996). The culture of education. Cambridge, Massachusetts: Harvard University Press.

Bruning, R. H., Schraw, G. J., & Ronning, R. R. (1995). Cognitive psychology and instruction. Englewood Cliffs, NJ: Prentice-Hall.

Bruno, K., England, E., & Chambliss, C. (2002). Social and emotional learning program for elementary school students. Retrieved November 20, 2010, from Eric database (ED463097).

Camp, W. G., Clarke, A., & Fallon, M. (2000). Revisiting supervised agricultural experience. Journal of Agricultural Education, 41 (3), 13-22.

Cary, C. (2002). Emotional intelligence. American Journal of Community Psychology, 30 (1), 1-14.

Catapano, S. (2005). Teacher professional development through children's project work. Journal of Early Childhood Education, 32, 261-26.

Chai, C. S., & Tan, S. C. (2009). Professional development of teachers for computer-supported collaborative learning: A knowledge-building approach. Teachers College Record, 111(5), 1296–1327.

Center of Statistical Information's. (1995). Development education system in Saud Arabia. Ministry of Education, Saudi Arabia: Ministry Press.

Chan, B. Y. M., & Chui, H. S. (1997). Parental participation in school councils in Victoria, Australia. International Journal of Educational Management, 11(3), 102-110.

Church, R. L., & Sedlak, M. W. (1976). Education in the United State: An interpretative history. New York: Free Press.

Ciarrochi, J., Chan, A. Y. C., & Caputi, P. (2000). A critical evaluation of the emotional intelligence construct. Journal of Psychology, 30, 539-561.

Clandinin, D, J. (1989). Developing rhythm in teaching: The narrative study of a beginning teachers' personal practice knowledge of classroom. Curriculum Inquiry, 19, 121-14.

Clarck, A. (2006). Changing classroom practice to include the project approach. Journal of Early Childhood Research & Practice. 8 (2). Retrieved Jan 13, 2011, from http://www.eerp.uiue.edu/v8n2/clark.html.

Clinchy, E. (1989).Education in and about the real world. Journal of Equity and Choice, 3, 19-29.

Cole, H. P., & Parsons, D. E. (1974). The Williams total creativity program. Journal of Creative Behaviour, 8, 187-206.

Collins, A., Brown, J. S., & Newman, S.E. (1989). Cognitive apprenticeship: Teaching the craft of reading, writing, and mathematics. In L. B. Resnick (Ed.), Knowing, learning and instruction: Essays in honor of Robert Glaser (pp. 453-494). Hillsdale, NJ: Lawrence Erlbaum Associates.

Connie, E, K., Mary, L. T., & Christine, A. (2006). Emotional intelligence: From the classroom to the workplace. Journal of Management Accounting Quarterly, 7 (2), 35 - 47.

Coulter, D. (2001). Teaching as communicative action: Habermas and education. In V. Richardson (Ed.), Handbook of research on teaching (pp. 90-98). Washington, DC: American Educational Research Association.

Cremin, L.A. (1961). The transformation of the school: Progressivism in American education, 1876 – 1957. New York: Knopf.

Curtis, D., & Carter, M. (1996). Reflecting childrens' lives: A hand book for planning d-centered curriculum. Upper Saddle River, NJ: Pearson.

Dan, L., Hild, B., & Jennie, W. (2008). The teacher educator's role in enhancing teacher quality. Journal of Teacher Education, 59 (2), 107 – 115.

Daniel, K. S, Stephane, L., & Paraskevi, S. (2009). Project based learning. Retrieved December 25, 2010, from http: //www. edutechwiki. unige. ch/ en/Project-based-learning.

David, J. F. (2005). Dues research based mean value neutral? Journal of Phi Delta Kappan, 86 (6), 411-426.

David, W. C. (2003). Dimensions of emotional intelligence and their relationships with social coping among gifted adolescents in Hong Kong. Journal of Youth and Adolescence, 32 (6), 409 – 416.

David, W. (2005). Self-perceived creativity, family hardiness and emotional intelligence of Chinese gifted students in Hong Kong. Journal of Secondary Gifted Education. 16, 47-59.

David, W. (2007). Encyclopedia of social siences. Colorado: Colorado University Press.

Davis, K. C. (1927). The new agriculture. Philadelphia: J. B. Lippincott.

De-Bono, E. (1985): Six thinking hats. New York: Penguin Group.

De-Bono, E. (1988). Letters to thinkers: Further thoughts on lateral thinking, London: Penguin Books.

De-Bono, E. (1995): Teach yourself to think. London: MC Group Inc.

De-Bono, E. (1998): Thinking course. London: BBC Book Press.

DeCoster, J. (1998). Overview of Factor Analysis. Retrieved May 7, 2012, from http://www.stat-help.com/notes.html.

Denton, H. (1994). The role of group team work in design and technology: Some possibilities and problems. In: F. Banks. (Ed.), Teaching technology (pp. 145–151). London: Routledge.

Derek, R., & James, C. (2003). Problem-based learning in Astrophysics. European Journal of Physics, 24 (2), Retrieved May 7, 2012, from http://iopscience.iop.org/0143-0807/24/2/306.

De-Vries, M. J. (1996). Technology education: Beyond the ‘‘technology is applied science’’ paradigm. Journal of Technology Education, 8(1), 7–15.

Dewey, J. (1899). School and society. Chicago: University of Chicago Press.

Dewey, J. (1910). How we think. Boston: Heath.

Dewey, J. (1913). Interest and efforts in education. New York: The Macmillan Company.

Dewey, J. (1916). Democracy and education. New York: The Macmillan Company.

Dewey, J. (1930, July 9). How much freedom in new schools? The New Republic Magazine, 58, 204 – 207.

Dewey, J. (1938). Experience and education. New York: Macmillan.

Dominguez, C., & Jaime, A. (2010). Database design learning: A project based approach organized through a course management system. Journal of Computers& Education, 55(3), 1313 - 1320.

Donegan, M., Hong, S. B., Trepaneir-Stree, M., & Finkelstein, C. (2005). Exploring how project work enhances student teachers' understanding of children with special need. Journal of Early Childhood Teacher Education, 26, 37-46.

Doppelt, Y. (2000). Developing pupils’ competencies through creative thinking in technological projects, Paper Presented to The 28th Israel Conference on Mechanical Engineering, Ben-Gurion University of the Negev Beer-Sheva, Israel.

Downing, K., Kwong, T., Chan, S., Lam, T., & Downing, W. (2009). Problem-based learning and the development of meta-cognition. Journal of Higher Education, 57(5), 609-621

Dryfoos, J. (1994). Full-service schools. San Francisco: Jossey Bass.

Dunlap, G., & Liso, D. (2004). Using choice and preference to promote improved behavior: What works briefs? Retrieved March 6, 2012, from http://www.vanderbilt.edu/csfel/resources what_works. html.

Ebrahim, A. (1998). The effect of two programs for prejudice trends: Factorial study. Unpublished Ph.D Thesis, Tanta University, Cairo.

Ebrahim, S. (2010). The basic system of education in Kuwait. The 5th Education Conference of Ministry of Education. Retrieved May 2, 2012, from http:// www.ksclub.org/ vb/ showthread. php? t = 11081.

Ebrahim, W. (1996). Empirical study of the contributed factorial to improve critical thinking. Unpublished Ph.D Thesis, Ein-Shams University, Cairo.

Eccles, J. S., Lord, S., & Buchanan, C. M. (1996). School transitions in early adolescence: What are we doing to our young people? In J. A. Graber & J. Brooks-Gunn (Eds.), Transitions through adolescence: Interpersonal domains and context (pp. 251-284). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Economic Group. (2009). Ministry of Trading. Kuwait: Al-Alam Press.

Edelson, D. C., Gordon, D. N, & Pea, R. D. (1999). Addressing the challenge of inquiry based learning, Journal of the Learning Sciences, 8, 392-450.

Edgar, D. W., Faulkner, P.F., Knobloch, N. A., & Morgan, A. C. (2008). Creative thinking: Opening up a world of thought. Journal of Techniques, 83(4), 46-55.

Ediger, M. (2000). Philosophy perspectives in teaching social studies. Journal of Instructional Psychology, 27(2), 35-44.

Education Encyclopedia. (2011). School principal: The role of elementary and secondary school principals, principal duties responsibilities, principal qualifications. Retrieved March 15, 2011, from http://www. education, stateuniversity.com/pages/2333/principal-school.html.

Educational Statistical Group. (2011). Ministry of Education. State of Kuwait: Ministry Press.

Educational Statistical Group, (2012). Ministry of Education. State of Kuwait: Ministry Press.

Edwards, C., Gandini, L., & Forman, G. (1993). The hundred languages & children: The Reggio Emillia approach to early childhood education. Norwood, NJ: Ablex.

Edwards, G. K. (2012). Teacher and new globalization. Cape Town: JS Publishers.

Eldrige, M. (1998). Transforming experiences: Nashville: Vanderbilt University Press.

Ennis, R. (1985): Goals for a critical thinking disposition curriculum association for curriculum development. Washington D. C: J. R. Publishers.

Ennis, R. (1987): At taxonomy of critical thinking disposition and abilities. In J. B. Baran & R. J. Strenbery (Eds.), Teaching thinking skills: Theory and practice (pp. 9-26). New York: W. H. Freeman. .

Epstein, A. S. (2008). An early start on thinking. Journal of Educational Leadership, 65(5), 38-42.

Eskrootchi, R., & Oskroch, R. (2010). A study of the efficacy of project based learning integrated with computer-based simulation- STELLA. Journal of Educational Technology & Society, 3(1), 236-245.

Eugene, G., & Jennifer, H. (2009). Encouraging creativity in the face of administrative convenience: How our schools discourage divergent thinking. Journal of Education, 130 (1), 141-152.

Facione, N., & Facione, P. (1996). Assessment design issues for evaluating critical thinking in nursing. Journal of Holistic Nursing Practice, 10 (3), 41-53.

Facione, P.A. (2007). Critical thinking: What it is and why it counts. Millbrae, CA: The California Academic Press.

Fahad, S. (2008). Education system of State of Kuwait. Ministry of Education. Kuwait: Ministry Press.

Farouk, A. O. (1993). Relationship between critical thinking and prejudice among university students. Journal of Psychology, 27(7), 36-58.

Fatema, B. (2009). Intuition in relation to creative motivation, emotional intelligence and achievement motivation among secondary school adolescents. Indian Journal of Social Science Researches, 6 (2), 118-127.

Feely, T. (1976): Critical thinking: Toward a definition paradigm and research agenda. Journal of Theory and Research in Social Education, 4 (1), 1-19.

Feldhusen, J. F. (1995): Creativity: A knowledge base, met-cognitive skills and personality factors. Journal of Creative Behavior, 29, 338-354.

Fengling, T. (2006). The child as an active learner: Views, practices, and barriers in Chinese early childhood education**.** Early childhood education, 82 **(**6),

Fisher, S. C. & Spiker, V. A. (2000). A framework for critical thinking research and training (Report Prepared for the U. S. Army Research Institute, Arlington VA).

Finley, D., Pettinger, A., Rutherford, T., & Timmes, V. (2000). Developing emotional intelligence in a multiage classroom. (Report No. PS028662). Chicago: Saint Xavier University and Skylight Professional Development Field-Based Masters Program. (ERIC Document Reproduction Service No. ED 442571).

Fosnot, C. T. (1996). Theory, perspective, and practice. New York: Teacher College Press.

Fouad, A. (1996). Mental abilities. Cairo: Angelo Press.

Fried – Booth, D. L. (1997). Project work. Oxford: Oxford University Press.

Freud, S. (1920).Group psychology and the analysis of the ego. New York:Boni and Live Right.

Freud, A. (1946). The Ego and the mechanisms of defense. New York: I.U.P.

Freud, A. (1962). After education. New York: S. T. Press.

Freud, S., & Brill, A. A. (1914). Psychopathology of everyday life. New York: Macmillan.

Freud, S., & katz, S. (1947). Freud: On war, sex and neurosis, New York: Art& Science Press.

Freud, S., & Strachey, J. (1989). The Ego and the Id. New York: Norton.

Fullan, M. (2001). Leading in a culture of change. San Francisco: Jossey Bass.

Fullan, M. (2003). The moral imperative of school leadership. Thousand Oaks, California: Corwin Press.

Fuller, F. F. (1969). Concerns of teachers: A developmental conceptualization. Journal of American Educational Research, 6(2), 207-226.

Gamage, D. T., & San Antonio, D. (2006). Effective participatory school administration, leadership and management: Does it affect the trust levels of stakeholders? National Council of the Professors of Educational Administration (NCPEA), Connexions KB Project, New York.

Garrison, D. R. (1991). Critical thinking and adult education: A conceptual model for developing critical thinking in adult learners. International Journal for Lifelong Education, 10, 287-303.

Garrison, D. R., & Cleveland-Innes, M. (2005). Facilitating cognitive presence in online learning: Interaction is not enough. American Journal of Distance Education, 19(3), 133–148.

Gardner, H. (1983). Frames of mind: The theory of multiple intelligences. New York: Basic Books.

Gardner, H. (1993). Multiple intelligences: The theory in tractice. New York: Basic Books.

Gardner, H. (1999a). Intelligence refrained. New York: Basic Books.

Gardner, H. (1999b). Are there additional intelligences? The case for naturalist, spiritual, and existential intelligences. In J. Kane (Ed.), Education, information, and transformation (pp. 111–131). Upper Saddle River, NJ: Prentice-Hall.

Gardner, H. E. (2000). Intelligence reframed: Multiple intelligences for the 21st century. New York: Basic Books.

Geeta, D. C. (2010). What is the role of a teacher? Journal of Education, 17 (3). Retrieved May 15, 2010, from http://www.csuu.edu/meq75037/ paper 1. html.

Getzels, J. W., & Jackson, P. W. (1962). Creativity and intelligence. New York: Wiley.

Getzels, J. W., & Csikszentmihalyi, M (1976). The creative vision: A longitudinal study of problem finding in art. New York: Wiley.

Goleman, D. (1990). Emotional intelligence. Why it can matter more than IQ, New York: Bantam Books.

Goleman, D. (1996). Working with emotional intelligence. New York: Bantam Books.

Goleman, D. (1998). What makes a Leader? Harvard Business Review, 76 (6), 93-102.

Goleman, D. (2003). Destructive emotions. How can overcome them? New York: Bantam Books.

Goleman, D., Boyatzis, R. E., & McKee, A. (2002). Primal leadership: Realizing the power of emotional intelligence. Boston: Harvard Business School Publishing.

Gordon, A. M., & Browne, K.W. (2004). Beginnings & beyond: Foundations in early childhood education. Clifton Park, New York: Delmar Learning.

Gore, S. W. (2000). Enhancing students' emotional intelligence and social adeptness. Retrieved April 8, 2001, from ERIC database (ED442572).

Gradner, R. (1992). The social psychology of creativity. New York, Springer: Verlay Press.

Grady, R., & Julie, F.H. (2007). The project method in agricultural education: Then and now. Journal of Agricultural Education, 48 (3), 46 – 56.

Greenlee, B., & Brown Jr., J. J. (2009). Retaining teachers in challenging schools. Journal of Education, 130 (1), 96-109. Retrieved Aug 5, 2011, from http://www.web. ebscohost. com.

Greg, J., & Anne, A. (2009). The value of incorporating emotional intelligence skills in the education of accounting students. Journal of Australasian Accounting Business & Finance Journal, 3(2), 48-59.

Gregory, A. K., James, O. R., & Tracey, R. R. (2005). Evaluation of the ecological, futures, and global (EFG) curriculum: A project based approach. Journal of Education, 125 (4), 652- 662.

Grinspan, D., Hemphill, A., & Nowicki, J. S. (2003). Improving the ability of elementary school-age children to identify emotion in facial expression. The Journal of Genetic Psychology, 164 (1), 88-100.

Guilford, J. P. (1956). Structure of intellect. Journal of Psychological Bulletin, 53, 267-293.

Guilford, J. P. (1957). A revised structure of intellect, study of high level personal. Report from Psych, Lab, Univ. of S. California, 19, 12-20.

Guilford, J. P. (1959). Personality. New York: McGraw Hill.

Guilford, J. P. (1967). The nature of human intelligence. New York: Raw-Hill.

Guilford, J. P. (1971). The analysis of intelligence. New York: McGraw Hill.

Gülbahar, Y., & Tinmaz, H. (2006). Implementing project-based learning and e-portfolio assessment in an undergraduate course. Journal of Research on Technology in Education, 38(3), 309–327.

Gunawardena, C. N., Lowe, C. A., & Anderson, T. (1997). Analysis of a global online debate and the development of an interaction analysis model for examining social construction of knowledge in computer conferencing. Journal of Educational Computing Research, 17(4), 397–430.

Gunn, T. M., Grigg, L. M., & Pomahac, G. A. (2008). Critical thinking in science education Can bioethical issues and questioning strategies increase scientific understandings? The Journal of Educational Thought, 42 (2), 165-178.

Gutek, G. L. (2009). New perspectives on philosophy and education. New York: Allyn & Bacon, Merrill.

Hafner, W., & Ellis, J. T. (2004). Project-based, asynchronous collaborative learning. In Proceedings of The 37th Hawaii International Conference on System Sciences (HICSS). Big Island, Hawaii.

Halpern, D. F. (2007). The nature and nurture of critical thinking. In R. J. Sternberg, H. L. Roediger III, & D. F. Halpern (Eds.), Critical thinking in psychology (pp. 1-14). Cambridge, NY: Cambridge University Press.

Hamed, A. Z. (1984). The guidance and psychological counseling. Cairo: The World of the Books.

Hassan, B. (2008). History of Kuwait. Kuwait: Kuwait Press.

Haythornthwaite, C. (2002). Building social networks via computer networks: Creating and sustaining distributed learning communities. In K. A. Renninger, & W. Shumar (Eds.), Building virtual communities: Learning and change in cyberspace (pp. 159–190). Cambridge, UK: Cambridge University Press.

Heeok, H., Kyu, Y., & Youngsoo, K. (2010). Exploratory study on the patterns of online international and knowledge co-construction in project based learning. Journal of computer and Education, 55(3), 1383-1396.

Helgeson, L. J. (1993). Promoting creativity & critical thinking with science. Journal of Teaching PreK- 8, 23(5), 12.

Helle, L., Tynjälä, P., & Olkinuora, E., (2006). Project-based learning in post-secondary education theory, practice and rubber slings shots. Journal of Higher Education, 51(2), 287–314.

Hellison, D., & Templin, T. (1991). A reflective approach to teaching physical education. Champaign, IL: Human Kinetics.

Helm, J. H. (2000). The project approach catalog 4: Literacy and project work. Champaign. IL: Early Childhood and Parenting Collaborative.

Helm, J. H., & Beneke, S. (2003). The power of project: Meeting contemporary challenges in early childhood classroom- strategies & solutions. New York: Teacher College Press.

Helm, J. H., & Katz, L. G. (2001). Young investigators: The project approach in the early years. New York: Teacher College Press.

Hendrie, W. (1998). Emotional intelligence at work. San Francisco: Jossey-Bass.

Hennessey, B. A., & Amabile, T. M. (1988). The conditions of creativity. In R. J. Sternberg (Ed.), The nature of creativity: contemporary psychological perspectives. (pp. 11-38). New York. Cambridge University Press.

Henz, G. (1992). Patterns for thinking, pattern for transfer: Cooperative team approach for critical and creative thinking in the class room. Washington: Skylight Press.

Hertzog, N. B. (1994). Impediments to a project-based and integrated curriculum: A qualitative study of curriculum reform. Paper Presented at the Annual Meeting of the American Educational Association, New Orleans, April 4-8.

Hill, P. T., Foster, G. E., & Gendler. T. (1990). High schools with character. Santa Monica, CA: Rand.

Hill, R. O., & Parker, T. H. (2006). A study of core-plus students attending Michigan State University. The Mathematical Association of America Monthly, 113, 905-921.

Hmelo-Silver, C. E., Chernobilsky, E., & Jordan, R. (2008). Understanding collaborative learning processes in new learning environments. Journal of Instructional Science, 36(5–6), 409–430.

Hodgkinson, H. (2003). Educational demographics: What teachers should know? In A. Ornstein, L. Behar-Horenstein & E. Pajak (Eds.), Contemporary issues in curriculum (pp. 349-353). New York: Allyn & Bacon.

Holland, A., & Andre, T. (1987). Participation in extracurricular activities in secondary school: What is known, what needs to be known? Review of Educational Research, 57(4), 437– 466.

Hopkins, R. (1979). Freedom and education. The beginnings of a new philosophy. Washington, DC: University Press of America.

Horn, E. (1922). Criteria for judging the project. Educational Review, 63, 93-101.

Horn, J. L. (1976). Human abilities: A review of research and theory in the early 1970's. Annual Review of Psychology, 27, 437-485.

Hsu, C. Y. (2008). Taiwanese early childhood educators' professional development. Journal of Early Child Development and Care, 178, 259-272.

Ilkay, U., & Esra, O. (2007). The effects of an emotional intelligence education program on the emotional intelligence of children. Journal of Social Behavior and Personality, 35 (10), 1365- 1374.

Iris, M. T., & Matthew, W. T. (2007). Project based learning approach to shale diagnosis: A better avenue to the big picture. Journal of Geoscience Education, 55 (4), 289-298.

Irosevski, R. (1980). Psychology of creativity. Journal of Psychology, 6, 33- 45.

Isaksen, S. (1993). An ecological approach to creative research. Profiling for creative problem solving. Journal of Creative Behavior, 27, 149- 170.

Jaber, S., & Ahmad, A. (2007). The new educational stage. Ministry of Education: Al-Ahram Press.

Jamal, S (2007). Educational objectives of secondary stage. Retrieved May 5, 2012, from http:// forum. stop55. com/ 133302. html.

James, B. H., Robert, E. N., Glen, E. F., Lois. G. H., & Karen, M. Q. (1986). Employ the project method. Ohio State University, Center for Research in Vocational Education.

Jasem, F. (1986). Dimensions of secondary stage in the new education system. Ministry of Education, Kuwait: Ministry Press.

Jean, M. (2003). Critical thinking and creative. An overview and comparison of the theories. Retrieved June 22, 2011, from http://www.wenku. aidu.com/view/639ae5fb770bf78a652 954ba.html.

Jena, M. R. (2011). A research-based approach for developing resources for the integrated mathematics classroom. Unpublished Ph.D Thesis, University of Walden, U.S.A.

Jenny, M., & Catherine, S. (2011). Active learning in primary school. A case study approach. London: Pearson.

Jerroldm R. (1994). National standards for arts education: The emperor's new clothes. Journal of Arts Education Policy Review, 96(2), p. 30.

Jiang, M., & Ting, E. (2000). A study of factors influencing students' perceived learning in a web- based course environment. International Journal of Educational, 6 (4), 317–338.

Jmilah, S., Safa, A., & Mariam, F., (2008). Variety of education directions. Department of Curriculum, Ministry of Education: Al-Alfen Press

John, A., & Lori, R. (2005). The analysis of the emotional intelligence skills and potential problem areas of elementary educators. Journal of Education, 125 (4), 615 – 623.

Jone, E., & Nimme, J. (1994). Emergent curriculum. Washington, DC: National Association for the Education of Young Children.

Judith M. B. (2009). Creative intelligence and creative practice. Journal of Studies in Art Education, 50 (4), 323- 338.

Judy, B. (2010, November 17). Making meaning: The project method. Tokyo Family Magazine, p.3.

Kamel, A. (1994). Psychology of physiology. Cairo: Educational Press.

Kang, N., & Howren, C. (2004). Teaching for conceptual understanding. Journal of Science and Children, 42(1), 28-32.

Kansu, N. (2002). Emotional intelligence in school. Journal of Personal Excellence, 6 (8), 13-16.

Katherine, C. (2011). Examining the role of principals in the retention of new teachers. Paper Submitted in Partial Fulfillment of the Requirements for the Degree Master of Science in Education, Dominican University of California, San Rafael.

Kathleen, M. H. (2009).Using the human patient simulator to foster critical thinking in critical situations. Nursing Education Perspectives. 30 (1), 28- 39.

Kathy, N. (2001). Emotional intelligence and social skills: Necessary components of hands-on learning in science classes. Journal of Elementary Science Education, 13 (2), 22- 34.

Katz, L. G. (1994a). Images from the world: Study seminar on the experience of the municipal infant – toddler centers and preprimary schools of Reggio Emilia, Italy. In L. G. Katz & B. Cesarone (Eds.), Reflections on the Reggio Emilia approach (pp. 7-19). Champaign, IL: ERIC Clearinghouse on Elementary and Early Childhood Education.

Katz, L.G. (1994b). The project approach. ERIC Digest, ERIC Clearinghouse on Elementary and Early Childhood Education. (ERIC Document Reproduction Service No. ED368509).

Katz, L, G. (1995). Talks with teachers of young children: A collection. Norwood, NJ: Ablex.

Katz, L. G. (1998). What can we learn from Raggio Emilia? In C. Edwards, L. Gandini & G. Forman (Eds.), The hundred languages of children: The Raggio Eemlia approach – advanced reflections (pp. 27-48). Greenwich, C. T: Ablex.

Katz, L. G., & Chard, S. C. (1989). The project approach. Norwood, NJ: Ablex.

Katz, L.G., & Chard, S. C. (2000). Engaging children's mind: The project approach. Norwood, NJ: Ablex.

Keith, T. Z. (1994). Intelligence is important, intelligence is complex. Journal of School Psychology Quarterly, 9, 209-221.

Ken, R. L. (2009). Fostering critical thinking in physical education students: Learning "better thinking" skills helps students develop into autonomous sportspersons. The Journal of Physical Education, Recreation & Dance, 80(8), 12-26.

Kennedy, M., Fisher, M., & Ennis, R. (1991). Critical thinking: Literature review and needed research. In L. Idol & B.F. Jones (Eds.), Educational values and cognitive instruction: Implications for reform (pp. 11- 40). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Kermit, G (2009). School principal – the role of elementary and secondary school principals, principal duties and responsibilities, principal qualifications. Educational Encyclopedia United State University: LM Group.

Kerry, S. W. (2009). Why emotional intelligence should matter to management: A Survey of the literature. Journal of SAM Advanced Management, 74 (2), 32-44.

Khair-Allah, C. (1981). The creativity. Beirut: Al-Salam Publishing Press.

Khalaf, G, K. (2010). Relationship between secondary stage students and their educational needs. Ministry of Education, Kuwait: Ministry Press.

Khaled, M., Salwa, B., Mariam, M., Intesar, A., & Hoda, A. (2009). The obstacles of creative thinking in general levels of schools in State of Kuwait. Ministry of Education, Kuwait: Ministry Press.

Khaled, T. (2008). Philosophy of education system in Kuwait. Kuwait: Kuwait Press.

Khatena, J. (1975). Directions in creativity research. Paper Presented at the 53rd Annual Convention of the Council for Exceptional Children and Association for the Gifted, Los Angeles.

Kiely, T. (1993). The idea makers. Technology Review, 96, 32 – 40.

Kilpatrick, W. H. (1918). The project method. Teacher College Record, 19(4), 319 – 335.

Kilpatrick, W. H. (1925). Foundations of method: Informal talks on teaching. New York: MacMillan.

Kilpatrick, W. H. (1929). The project method: The use of the purposeful act in the educative process. New York: Teachers College Press.

Kilpatrick, W. H. (1936). Remaking the curriculum. New York: New Son.

Kinzer, C. K., & McKenna, M. C. (1999). Using technology in your classroom literacy program: Current and future possibilities. Paper Presented at the 44th Annual Convention of the International Reading Association, San Diego, CA.

Kleiber, D. A. (1999). Leisure experiences and human development: A dialectical interpretation. New York, NY, USA: Basic books, Inc.

Kliebard, H. M. (1986). The struggle for the American curriculum, 1893–1953. Boston: Routledge & Kegan Paul.

Knoll, M. (1989). Transatlantic influences: The project method in Germany. In C. Kridel. (Ed.), Curriculum history: Conference presentations from the society for the study of curriculum history (pp. 214-220). Lanham: University of America Press.

Knoll, M. (1991a). Europe - not America: The project method in education, 1702-1875. Education Observation, 45, 41 – 58.

Knoll, M. (1991b). Learn by practical problem: Project method in U.S.A. from 1860–1915. International Journal of Project Social Sciences Researches, 8, 103 – 127.

Knoll, M. (1993). The project's creation and their method-reception: Anniversary of the article by William H. Kilpatrick. Journal of Pedagogy and School Life, 48, 338-351.

Knoll, M. (1994). The "Russich System" development of the project method in America. Journal for Professional, 90, 5-25.

Knoll, M. (1996). Faking a dissertation: Ellsworth collings, William H. Kilpatrick, and the project curriculum. Journal of Curriculum Studies, 28, 193-222.

Knoll, M. (1997). The project method: Its vocational education origin and international development. Journal of Industrial Teacher Education, 34 (3), 59-80.

Knoll, M. (2002). Project method. Encyclopedia of education. Michigan: The Gale Group Inc.

Koastler, A. (1978). Conceptualization creating in three dimensions. Journal of Creative Behavior, 13, 165-178.

Kolb, D. A. (1984). Experiential learning: Experiences as the score of learning and development. NJ: Prentice- Hall.

Kolb, K., & Weede, S. (2001). Teaching prosocial skills to young children to increase emotionally intelligent behavior. Retrieved June 19, 2010 from ERIC database, (ED456916).

Kostelnik, M. J., Soderman, A. K., & Whiren, A. P. (2007). Developmentally appropriate curriculum: Best practice in early childhood education. NJ: Prentice Hall.

Krajcik, J. S., Czerniak, C., & Berger, C. (1998). Teaching children science: A project-based approach. Boston, MA: McGraw-Hill.

Kuwait Education Indicators Report. (2007). Department of planning, Ministry of Education, Kuwait: Ministry Press.

Lady Plowden Report (1967). Children and their primary schools. A Report of the Central Advisory Council for Education (England): Queen's Printer for Scotland.

Lasker, H. (1980): The relationship between content treatment and questioning treatment on critical thinking in social studies. Dissertation Abstracts International, 41 (9-A), 11-59.

Laura, H., Paivi, T., & Erkki, O. (2006). Project- based learning in post-secondary education-theory, practice and rubber sling shots. Journal of Higher Education, 51(2), 287-314.

Lawrence, W., & Barbara, S. (1995). Help full hints toward critical and creative thinking in the class room. Paper Presented at the Annual Meeting of the Speech Communication Association, San Antonio, TX (November 18th -21st).

Leonard, M. & Bruce, W. (2003, June 1). Emotional intelligence and how it contributes to officer safety. Magazine of Corrections Today, 65 (3), p. 84.

Lewis, L. (2010). Data day: Highlighting the geographic skills in a school wide event. Journal of Geography Teacher, 7(1), 4-8.

Lickona, T. (1991). Educating for character: How our schools can teach respect and responsibility. New York: Bantam.

Liliana, G. K. (1994). The project method. Eric Digest Archive. Retrieved July 28, 2011, from http://www.ceep.crc.illinois.edu/eecearchive/digests/1994/lk-pro94.html.

Lima, R., Carvalho, D., Flores, M., & Natascha, V. (2006). A case study on project led education in engineering: Students' and teachers' perceptions. European Journal of Engineering Education, 32(3), 337-347.

Linda, E. (2007). Critical thinking. Retrieved March 5, 2011, from htt: //www. Criticalthinking. org/ abducts/ define_critical_thinking. cfm.

Linda, E., & Richard, P. (2006). Critical thinking in a world of accelerating change and complexity. New York: Pearson College Div.

Linn, M. C., Kessel, C., Lee, K., Levenson, J., Spitulnik, M., & Slotta, J. D. (2000). Teaching and learning k-8 mathematics and science through inquiry: Program reviews and recommendations. Retrieved March 13, 2012, from http:// www. metiri.com/ Solutions/ k8ReportSubmitted.doc.

Lisa, G. S., & Mark, J. S. (2008). Teaching critical thinking and problem solving skills. Journal of Delta Pi Epsilon. 50 (2), 90-102.

Lise, A, W. (2007). An examination of the relationship between emotional intelligence and leadership style. Paper Presented at the Academy of Human Resource Development International Conference (AHRD) (Austin, TX, March 3rd -7th) p.1151-1158.

Liu, K.C., & Chien, C. Y. (1998). Project approach and parent involvement in Taiwan. Journal of Children Education, 74, 213-219.

Louis, K. S., Leithwood, K., Wahlstrom, K. L., & Anderson, S. E. (2010). Investigating the links to improved student learning: Final report of research findings. St. Paul, MN: University of Minnesota.

MacKinnon, D. W. (1962). The nature and nurture of creative talent. Journal of American Psychologist, 17, 484 - 495.

Mahoney, J. L., & Stattin, H. (2000). Leisure activities and adolescent antisocial behavior: The role of structure and social context. Journal of Adolescence, 23, 113-127.

Majdi, A. (1986). The cognitive constructive treats of creative achievement. Unpublished Doctoral Thesis, Education Faculty, Tanta University, Cairo.

Mansour, T. (1989). The basic of general psychology. Cairo: Anglo Press.

Mansy, M. (1981). The relationship between the ability of creative thinking, social and economic level of elementary children. The Journal of Qatar Education, 25, 13- 24.

Marcon, R. A. (1992). Differential effects of their preschool models on inner- city four year olds. Early Childhood Research Quarterly, 7(4), 517-530.

Marina, P. (2009). Digital game-based learning in high school computer science education: Impact on educational effectiveness and student motivation. Journal of Computers & Education, 52(1), 1–12.

Marlow, E. (2000). Philosophy perspectives in teaching social studies. Journal of Instructional Psychology, 27 (2), 112 – 122.

Marlow, E. (2006). Administration of schools. Journal of College Student, 40 (4), 842 – 849.

Marrapodi, J. (2003). Critical thinking and creativity: An overview and comparison of the theories. Unpublished doctoral dissertation, Capella College, Rhode Island. Retrieved June 23, 2011, from http: //www. applestar. org/capella/cririca l%20thinking%20andcreativity. pdf.

Matt, B., & Rick, R. (2001). Relationship between critical and creative thinking. Journal of Southern Agricultural Education Research, 51(1), 173-188.

Maude, W., & Mary, S. (1961). Home making education in the high school. New York: NY.

Mayer, J. D., Caruso, D., & Salovey, P. (1998). The multifactor emotional intelligence scale. Journal of Intelligence, 28, 150 – 162.

Mayer, J. D., Caruso, D., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. Journal of *Intelligence, 27,* 267-298.

Mayer, J.D., Caruso, D. R., & Salovey, P. (2002). Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT): Users Manual. Toronto, ON: Multi Health Systems, Inc.

McCormick R., & Murphy P. (1994) Learning the processes in technology. Paper Presented to the British Educational Research Association Annual Conference, Oxford University, England.

McLoughlin, C. (2002). Learner support in distance and networked learning environments: Ten dimensions for successful design. Journal of Distance Education, 23(2), 149-162.

Mcmullan, W. E. (1977). The two factor conceptualization of creativity stimulation. Journal of Creative Behavior, 4, 271 – 292.

Meyers, C. (1986). Teaching students to think critically. A guide for faculty in all disciplines. San Francisco: Jossey-Bass.

Michelli, O. (1991). Critical thinking as creativity. Journal of Institute for Critical Thinking Resource, 4 (5), 3-10.

Millward, L. J., & Freeman, H. (2002). Role expectations as constraints to innovation: The case of female managers. Journal of Creativity Research. 14, 93-109.

Min, L., & Yu-Ping, H. (2002). Middle school students as multimedia designers: A project-based learning approach. Journal of Interactive Learning Research, 13 (4), 311-321.

Mitchell, S., Foulger, T. S., Wetzel, K., &Rathkey, C. (2009). The negotiated project approach. Project-based learning without leaving the standards behind. Journal of Early Childhood, 36(4), 339-346.

Mohammad, S. A. (2008). The role of student activities to discover and support talented. Retrieved May 11, 2012, from http:// www. khayma. com/ scinececlub/ Method.html.

Mohammad, S, L. (2011). Annual report of ministry of high education in State of Kuwait. Ministry of high education, Kuwait. Al- Ahram Press.

Morad, W. (1991). Creativity and education. National Center of Educational Researches Cairo: Science Press.

Morgan, A.R. (1995). Improving student learning in distance education: Theory, research and practice. Journal of European Psychology of Education, 10(2), 121–130.

Morrison, D, F. (1990). Multivariate statistical methods. New York: McGraw-Hill.

Morrow, C. C., Jarrett, M.Q., & Rupinski, M.T. (1997). An investigation of the effect and economic utility of corporate - wide training. Journal of Personnel Psychology, 50, 91-119.

Moursound, D. (2002). Project – based learning: Using information technology. Canada: ISTE.

Moss, D. (1998). Project based learning and assessment: A resource manual for teacher. Arlington, VA: The Arlington Education and Employment Program (REEP).

National Research Council. (1999). Being fluent with information technology. Washington, DC: National Academy Press.

Nilay, R., & Naimur, R. (2008). Role of teacher in enhancing learning achievement of child & emphasis of teacher skill development, knowledge building and ICT. Delhi: ST Press.

Newcomb, L. H., McCracken, J.D., Warmbrod, J. R., & Whittington, M.S. (2004). Method of teaching agriculture. NJ: Pearson-Prentice Hall.

Noddings, N. (1992). The challenge to care in schools: An alternative approach to education. New York: Teachers College.

Oelkers, J. (1995). Break and continuity: Observation on the modernization effects and traditionalizations in international reform pedagogy. Paedagogical Historica, 31 (3), 674-713.

Oelkers, J. (1997). How to define and justify scientific literacy for every one. In W, Graber& C, Bolte, C. (Eds.), Scientific literacy: An International Symposium (Sep 9th – 12th) (pp. 87-101), Institute for Science Education at the University of Kiel.

Oelkers, J. (1999). Some historical notes on George Herbert Mead's theory of education. Retrieved September 21, 2010, from http:// www. ineer. Org/Events/ICWW001/Proceeding/ Papers/398.

Oelkers, J. (2000). Rousseau and the image of modern education. Paper Presented at the Annual Meeting of the Philosophy of Education Society of Great Britain, University of Oxford, (April 15th).

Oelkers, J. (2002). System research, Piaget, and the development of the Swiss curriculum. Paper Presented as Part of s Presentation by the Department of Education of the Canton of Zurich to the Delegation of the People's Republic of China, Kantonsschule Hottingen, (April 22nd).

Oelkers, J. (2005). What determine the relationships between young and old? Research Project, Zurich University, SNF- Program SNF/ NCCR.

Oliver, J. S., & Nichols, K. B. (2001). Intellectual independence as a persistent theme in the literature of science education: 1900 – 1950. Journal of School Science and Mathematics, 101 (1), 49 – 59.

Ornstein, A., Behar-Horenstein, L., & Pajak, E. (2003). Contemporary issues in curriculum. New York: Allyn & Bacon.

Ornstein, A., & Hunkins, F. (1998). Curriculum foundations principles and issues: Needham Height, MA: Allyn & Bacon.

Osborn, C. (1980). The creative school. New York: Scribner's.

Palincsar, A. S. (1998). Social constructivist perspectives on teaching and learning. Annual Review of Psychology, 45, 345–375.

Paloff, R. M., & Pratt, K. (2001). Lessons learned from the cyberspace classroom – The realities of online teaching. San Francisco, CA: Jossey-Bass.

Pamela R. (2008). The project approach: An appreciation for the constructivist theory. Forum on Public Policy, A Journal of the Oxford Round Table, 26 (1), 1-20.

Papert, S. (1980). Mind storms, children, computers and powerful ideas. New York: Basic Books.

Patrick, E., Denis, M., & Vandamme, R. (2001). Seven steps to emotional intelligence. Carmartjen, UK: Crown House Publishing.

Paul, R., & Elder, L. (2006). The miniature guide to critical thinking: Concepts and tools. Dillon Beach, CA: The Foundation for Critical Thinking.

Piaget, J. (1950). The Psychology of intelligence. Rutledge, London: N. D. Publisher.

Pianta, R. C. (2006). Standardized observation and professional development: A focus on individualized implementation and practices. In M. Zaslow & I. Martinez-Beck (Eds.), Critical issues in early childhood professional development (pp 231-254). Baltimore, MD: Brookes.

Polychronopoulou, A., & Divans, K. (2009). Dental students' perceived sources of stress: A Multi-country study. Journal of Dental Education, 73(5), 631-639.

Prince, G. M. (1975). The mind spring theory: A new development from synectics research. Journal of Creative Behaviour, 9, 159-181.

Prince, M., & Felder, R. (2007). The many faces of inductive teaching and leaning. Journal of College Science Teaching, 36(5), 14–20.

Qandil, S. (1990). The effect of the gender and the culture on the creative performance for the children in the elementary school. Journal of Education Faculty, 13, 20-25.

Ragsdell, G. (2001). From creative thinking to organizational learning via systems thinking? An illustration of critical creativity. Journal of Creativity & Innovation Management, 10 (2), 102-109.

Rajab, T. B. (2009). Critical Thinking Test. Gulf University, Almanama: Science Press.

Rashed, T. A., Abdul-Hadi, M. A., & Foad, F. M. (2009). Scholastic agricultural project textbook. Ministry of Education, Kuwait: Al-Siyasa Publishing House.

Rashed, D. (2010). The history of Public Authority for Applied Education and Training. Kuwait: Ahmadi Press.

Renuka, S. (2009). Emotional intelligence and creative of school students. Retrieved July 27, 2011, from http://www.ejournal.aiaer.net/vo121109.%20 Sharma. pdf.

Resnick, L. B. (1987). Learning in school and out. Educational Researcher, 16 (9), 13-20.

Rieber, L.S., & Noah, D. (1998). The value of serious play. Journal of Educational Technology, 38 (6), 29-37.

Rippa, A. (1997). Education in a Free Society: An American History. New York: Longman.

Robert, M. (2000). The role of school. Paper Presented at Conference of Education Systems. London University. London.

Ronald, D. (2010): The project method. Retrieved June 15, 2011, from htt://www.articlecamp.com irss.php? rss=265.

Rosa, H. (2007). Finding extra curriculum activities for your child. Retrieved March 15, 2012, from http:// voices, yahoo.com/finding- extra-curriculum-activities-chils-564055.html.

Rose, M. (1997). Lives on the boundary. New York: St. Martin's Press.

Roshka, A. (1989). The general and private creativity. Journal of Knowledge World, 44, 44-56.

Rothstein, R., Wilder, T., & Jacobsen, R. (2007). Balance in the balance. Education Leadership, 52 (8), 8-14.

Ruim, L., Dinis, C., Maria, A. F., & Natasha, V. H. (2007). A case study on project led education in engineering: students' and teachers' perceptions. European Journal of Engineering Education, 32(3), 337-347.

Ruggiero, V. R. (1995): Beyond feeling: A guide to critical thinking. Mountain View: CA: Mayfield Publishing Company.

Sa'ed, A. (1999). Creative Thinking Test. Naitonal University, Cairo: University Press.

Salem, A. (2011). Dimensions of higher education in State of Kuwait. Kuwait: Al-Jawharah Press.

Salem, K. (2009). The history of education in Kuwait from 1990-2009. Kuwait: Al-Ahram Press.

Sallee, B., & Michaelene, M. O. (2009). Teachers' views of the efficacy of incorporating the project approach into classroom practice with diverse learners. Journal of Early Childhood Research & Practice, 11. (1).

Sallee, J, B. (2010). The effect s of the project approach on children in inclusive early childhood classroom. Ph.D Thesis, University of Illinois at Urbana-Champaign, U.S.A.

Salovey, P., Bedell, B., Detweiler, J. B., & Mayer, J. D. (1999). Coping intelligently: Emotional intelligence and the coping process. In C. R. Snyder (Ed.), Coping: The psychology of what works (pp. 141-164). New York: Oxford University Press.

Salovey, P., Mayer, J. D., Goldman, S. L., Turvey, C., & Palfia, T. P. (1995). Emotional attention, clarity, and repair: Exploring emotional intelligence using the Trait Meta-Mood Scale. In J. W. Pennebaker (Ed.), Emotion, disclosure, and health (pp. 125–154). Washington, DC: American Psychological Association.

Sam, S. (2012). Multidimensional emotional intelligence assessment – workplace (MEIA-W). Port Huron, MI: Sigma Assessment.

Samuel, T. (1951). William Heard Kilpatrick. New York, NJ: Harper& Brother Publishers.

Santos-Trigo, M., & Camacho-Machín, M. (2009). Towards the construction of a framework to deal with routine problems to foster mathematical inquiry. Problems, Resources & Issues in Mathematics Undergraduate Studies, 19(3), 260-279.

Sascha, M, Teresa, S. F, Keith, W., & Chris, R. (2008). The negotiated project Approach: Project based learning without leaving the standard behind. Journal of Early Childhood and Education, 36(4), 339-346.

Savich, C. (2008). Improving critical thinking skills in history. Oakland University, Oakland: University Press.

Schlechty, P. C. (1997). Inventing better schools: An action plan for educational reform. San Francisco: Jossey Bass.

Schrire, S. (2004). Interaction and cognition in asynchronous computer conferencing. Journal of Instructional Science, 32(6), 475–502.

Schuler, D. (1998). Teaching project skills with a mini- project. In J. H. Helm (Ed.), The project approach catalog 2 (pp. 15-18). Champaign, IL: ERIC Clearinghouse on Elementary and Early Childhood Education.

Schulman, P. (1995). Explanatory style and achievement in school and work. In G. Buchanan & M. E. P. Seligman (Eds.), Explanatory style (pp. 159-171). Hillsdale, N J: Lawrence Erlbaum Association.

Schutte, J. G. (1997). Virtual teaching in higher education: The new intellectual superhighway or just another traffic jam? Retrieved May 10, 2012, from http://www.csun.edu/sociology/ virexp.htm.

Scott, C. (1994). Project based science: Reflection of a middle school teacher. Journal of Elementary School, 57(1), 1-22.

Scriven, M., & Paul, R. (2007). Defining critical thinking. The critical thinking community: Foundation for critical thinking. Retrieved December 2, 2010, from thinking. com. http://www.criticalthinking. org/ about CT/ define.

Sen, A. K., & Khanam, M. (1998).The influence of creativity, sex type of school on relative self–perception. Journal of Social Science International, 14 (1-2), 60-70.

Senge, P., Cambron-McCabe, N. Lucas, T., Smith, B., Dutton, J. and Kleiner, A. (2000). Schools that learn. A fifth discipline fieldbook for educators, parents, and everyone who cares about education, New York: Doubleday/Currency.

Shalaway, L. (1997). Learning to teach? Not just for beginners: The essential guide for all teachers. Jefferson City, MO: Scholastic.

Shapiro, L. E. (1999). To raise a child with a superior IQ. Istanbul: Varlik Press.

Shapiro, L. E. (2002). How to raise a child with a high EQ. U.S.A: Harper Collin Publisher.

Shek, D. T., & Sun, R. C. (2009). Using students' weekly dairies to evaluate positive youth development programs: The case of project P.A.T.H.S in Hong Kong. Journal of Adolescence, 44 (173), 68-85.

Slaiman, A. A. (1999). System and policy of education in Kingdom of Saudi Arabia. University of Mohammad Ben-Soud: University Press.

Smith, B. J., & Fox, L. (2002). System of service delivery: A synthesis of evidence relevant to young children at risk for or who have challenging behavior. Retrieved March 3, 2012, from www.challenging behavior.org.

Snelgrove, S., & Slater, J. (2003) Approaches to learning: Psychometric testing of a study process questionnaire. Journal of Advanced Nursing, 43(5), 496–505.

Sola, A. O., & Ojo, O. E. (2007). Effects of project, inquiry and lecture-demonstration teaching methods on senior secondary students' achievement in separation of Mixtures Practical Test. Educational Research and Reviews, 2(6), 124-132.

Solomon, G. (2003). Project-based learning: A primer. Journal of Technology & Learning, 23(6), 20-30.

Souto-Maning, M., & Lee, K. (2005). In the beginning I thought it was all play. Parents' perceptions of the project approach in a second classroom. Journal of School Community, 15 (2), 7-20.

Spearman, C. (1904). General intelligence, objectively determined and measured. American Journal of Psychology, 15, 201-293.

Spearman, C. (1923). The nature of `intelligence' and the principles of cognition. New York: Arno Press.

Spearman, C. (1927). The abilities of man. London: Macmillan.

Stepath, C, M. & Bacon, J. C. (2010). Marine debris clean- ups as meaningful science learning. The American Geophysical Union, Ocean Sciences Meeting (Portland- Feb 22nd -26th).

Stephanie, B. (2010). Project-based learning for the 21st century: Skills for the future: A Journal of Educational Strategies, 83 (2), 39-43.

Sternberg, R. J. (1986). Intelligence applied: Understanding and increasing your intellectual skills. San Diego: Harcourt Brace Jovanovich.

Sternberg, R. J. (1988). The trial mind: A new theory of human intelligence. New York: Viking.

Sternberg, R. J. (1997). The concept of intelligence and its role in lifelong learning and success. American Psychologist, 52, 1030 -1037.

Sternberg, R. J. (1999). The theory of successful intelligence. Review of General Psychology, 3, 292 – 316.

Sternberg, R. J., & Lubart, T. I. (1995). Defying the crowd: Cultivating creativity in a culture of conformity. New York. Free Press.

Stevenson, J.A. (1925). The project method to teaching. New York: MacMillan.

Stimson, R.W. (1919). Vocational agricultural education by home projects. New York: Macmillan.

Stites, R. (1998). What does research say about outcomes from project-based learning? Retrieved November 20, 2010, from http://www.pblmm.k12.ca.us/PBL Guid/pblresch.htm.

Stockton, J.L. (1920). Project work in education. Cambridge, MA: Riverside Press.

Stokes, L. (2001). Lessons from an inquiring school: Forms of inquiry and conditions for teacher learning. In A. Lieberman (Ed.), Teachers caught in the action: Professional development that matters (pp. 144-158). New York: Teachers College Press.

Student Teaching Handbook. (2003). The role of the school administrator. State University of New York, New York: University Press.

Synteta, P. (2003). Project based e-learning in higher education: The model and the method, the practice and the portal. Studies in Communication, New Media in Education. 263-269.

Synteta, P., & Schneider, D. (2002). How XML can scaffold project-based learning. In Proceeding of The 4th International Conference on New Educational Environments (ICNEE'02), Lugano, Switzerland.

Taha, F. (1993). Encyclopedia of psychology and psychoanalysis. Kuwait: Al-Sabah Press.

Talbert, B. A., Vaughn, R., & Croom, D. B. (2005). Foundations agricultural education. Catlon, IL: Professional Educators Publications.

Tallia, M. N. (2003). The project approach to learning: How the project approach provides opportunities for authentic learning. Unpublished Master's thesis, Pacific Lutheran University, USA.

Tanner, D., & Tanner, L. (1995). Curriculum development theory into practice. Columbus, OH: Prentice Hall.

Taylor, F. (1972). Climate for creativity. New York: Bergman.

Tegano, L. (1991): Integration critical thinking and creative thinking in the cooperative learning model. New York: Falcon Press.

Thomas, J. W., Mergendoller, J.R., & Michaelson, A. (1999). Project based learning: A hand book for middle and high school teachers. Novato, CA: The Buck Institute for Education.

Thomas, W. R., & MacGregor, S. K. (2005). Online project-based learning: How collaborative strategies and problem solving processes impact performance. Journal of Interactive Learning Research, 16(1), 83–107.

Thorlakson, C. L. (2004). Teaching and learning to care: An early year's intervention program in emotional intelligence. Unpublished Master's thesis. University Of Manitoba, Canada. Retrieved June 25, 2010, from (Umi Proquest database) http://www.proquest.com/product_ pq/ descriptions/ pqdt/ shtml.

Thorndike, R., & Stein, S. (1937). Evaluation of the attempts to measure social intelligence. Psychological Bulletin, 34, 275 – 284.

Thurstone, L. L. (1938). Primary mental abilities. Chicago: University of Chicago Press.

Tolga, E., Recai, A., & Sibel, C. A. (2009). The effect of the Van Hiele Model Based Instruction on the creative thinking levels of 6th grade primary school students. Journal of Education Science: Theory and Practice, 9, (1), 181-193.

Torrance, E. P. (1967). Creativity: Its educational implications. New York: Wiley.

Torrance, E. P. (1969). Developing creative science talent. Minnesota, Academy of Science Proceedings: R. P. Group.

Torrance, E. P., & Myers, R. E. (1970). Creative learning and teaching. New York: Dodd & Mead Company.

Toren, K. (1993). Toward an integration of creative and critical thinking. Journal of American Behavioral Scientist, 37(1), 112-120.

Tyler, R. W. (1975). Educational benchmarks in ret respect: Educational change since 1915. View Point, 5 (2), 11-31.

Urban, K. (2006). Creativity: A component approach model. Paper Presented at the 11th World Conference on the Education for the Gifted and Talented, Hong Kong.

Vaill, P. B. (1996). Learning as a way of being: Strategies for survival in a world of permanent white water. San Francisco: Jossey-Bass.

Van Aalst, J. (2009). Distinguishing knowledge-sharing, knowledge construction, and knowledge-creation discourses. International Journal of Computer-Supported Collaborative Learning, 4(3), 259–287.

Van-Ausdal, S. J. (1988). William Heard Kilpatrick: Philosopher and teacher. Journal of Childhood Education, 64, 164-168.

Victoria, S. (2000). The importance of creative thinking, emotional intelligence and the arts for education in the 21st century. Retrieved July 22, 2011, from http://www. drvictoriastevens.com/stevens_edu21update 2000.

Waks, L. J. (1997). The project method in postindustrial education. Journal of Curriculum Studies, 29, (4), 391-406.

Walker, A., & Dimmock, C. (2000). Mapping the way ahead: Leading educational leadership into the globalized world. Journal of School Leadership & Management, 20 (2), 227-233.

Walsh, D. (1988): Critical thinking to reduce prejudice. Journal of Social Education, 52 (4), 280-283.

Wang, B. (2011). The theory and implementation of the project method in technology education. Retrieved Jan 2, 2011, from http://www.nihstp.edu.tw/2011/chinese/pdf/1.

Wechsler, D. (1943). Non intellective factors in general intelligence. Psychological Bulletin, 37, 444-445.

Wechsler, D. (1958). The measurement and appraisal of adult intelligence. Baltimore, MD: The Williams and Wilkins Company.

Wechsler, D. (1991). Wechsler Intelligence Scale for children. San Antonio, TX: The Psychological Corporation.

Wilburg, K. M. (1998). An historical perspective instructional design: Is it time to exchange Skinner's teaching machine for Dewey's toolbox. Hillsdale, NJ: L. Erlbaum Association.

William, M. P., & Tomas, G. (1997). The project method in marketing education. Conference of Enhancing Knowledge Development in Marketing (Aug 8th -12th), Chicago: American Marketing Association.

Wilson, R. C. (1958). Creativity. Chicago: University of Chicago Press.

Woolfolk, A. E., Winne, P. H., & Perry, N. E. (2000). Educational psychology. Scarborough, Ontario: Prentice-Hall.

Yakoub, S., Soad, A., & Rshid, A. (1991). Education document of school. Department of Curriculum, Ministry of Education, Kuwait: Al-Anba'a Press.

Yang, S. C., & Lin, W. C. (2004). The relationship among creative, critical thinking and thinking styles in Taiwan high school students. Journal of Instructional Psychology, 31(1), 33-46.

Yaron, D. (2009). Assessing creative thinking in design based learning. International Journal of Technology and Design Education, 19 (1). 55-65.

Yew, E., & Schmidt, H. (2009). Evidence for constructive, self-regulatory, and collaborative processes in problem-based learning. Journal of Advances in Health Sciences Education, 14(2), 251-273.

Yi-Man, B. M. (2010). Teachers of young children in Taiwan: Teachers' concerns about curriculum and the implementation of project approach. Ph.D Thesis, Texas Woman's University, Texas, U.S.A.

Yin, R. K. (1994). Case study research: Design and methods. Newbury Park, CA: Sage.

Yousef, A. (2008). Overall objectives of education in Saudi Arabia. Retrieved May 4, 2012, from http://www.jeddmath.com/vb/showthread. Php?t=989.

Yousef, H. (2009). School activities guide. Kuwait: Science Press.

Yukl, G. (1998). Leadership in organizations. Englewood Cliffs, NJ: Prentice-Hall.

Yukl, G., & VanFleet, D. D. (1992). Theory and research on leadership in organizations. In M. D. Dunnette& I. M. Hough (Eds.), Handbook of industrial and organizational psychology (pp. 14-197). Palo Alto, CA: Consulting Psychologists.

Yvonne, K. (2003). A study of bones. Journal of Early Childhood Research & Practice, 5 (1), 12-25.

Yvonne, K., & Josefina, Pin. (2009). The project approach with toddlers. Early Childhood Research & Practice, 11(1).

Zaid, S. M. A. (2011). The effectiveness of a training program based on cognitive research trust strategies to develop seventh grade student's critical thinking in history course. Journal of Social Sciences. 7(3). 436-442.

Zeegers, P. (2001). Approaches to learning in science: A longitudinal study. British Educational Research Journal, 71 (1), 115–32.

Zhang, J., Scardamalia, M., Lamon, M., Messina, R., & Reeve, R. (2007). Socio-cognitive dynamics of knowledge building in the work of 9- and 10-year-olds. Educational Technology Research and Development, 55(2), 117–145.

Zidan, M. (2006). Psychology of creative production. Tunisia: International Freedom Press.

Zimmerman, D. C. (2010). Project based learning for live skill building in 12th grade social studies classrooms: A case study. Unpublished Master's thesis, Dominican University of California, U.S.A.

APPENDIX

APPENDIX

This appendix consists of three parts. **First**, the three scales used to test the study variables.

The main object of these scales to measure the following variables:

i. Creative Thinking.

ii. Critical Thinking.

iii. Emotional Intelligence.

Second, the Scholastic Agricultural Project Textbook. **Third,** some photographs taken by the author in the agricultural fields in the schools where the projects that were the subject of the current study were undertaken by students.

Appendix 1. Tests for Study Variables

1.1 Template letter to participating students

State of Kuwait
Ministry of Education
Al-Farwanyah Education District
Scholastic Activities Control

Dear Student

You have a set of educational measurements that measure different aspects of your scholastic, social and educational life. Please provide your answers to the same. The more accurate your answer, the more help it will help us to develop appropriate solutions for the obstacles facing you in your scholastic life. Please note that these measurements do not have to do with your academic marks or achievements and will not affect them.

Best regards

1.2. Student Data

Please write your data

Your name: (optional)……..

School Grade: ……

Section: ……..

Age: ……. years

Residence area: …….

Education Zone: ……..

Date of response to questionnaires:

/ /

Please underline the correct answer:

Sex: male/ female

Nationality: Kuwaiti/ Non-Kuwaiti

Tick one answer only before each of the following statements by underlining it:

What is your father's professional status?

Government/ private sector/ self-employed/ retired/ unemployed

What is your mother's professional status?

Government/ private sector/ self-employed/ retired/ unemployed

Important preferred activities inside and outside school:

sports/ reading/ computers/ travel/ study/ farming/ scientific activities/ religious activities/ poetry/ cultural activities/ others

What is your position in order among your brothers and sisters:

1. For example, are you the first, second, third, etc?
2. So, you are ……

Please underline the correct answer:

Do you live with:

your parents/ your father only/ your mother only/ or with others …

1.3 Scales for Testing the Three Variables

First Scale: Creative Thinking

Please tick one answer only which you select from the five alternatives opposite to each of the following paragraphs (the response time is fifteen minutes):

S	Items	Strongly Agree	Normally Agree	Fairly Agree	Disagree	Strongly disagree
1	If I have a question in a school subject, I like to find more than one solution method.					
2	When discussions take place among friends, I tend to participate more than listening.					
3	Creativity hindrances include the teacher interrupting the students in a harsh manner before they have finished their answer.					
4	I can change my study plan quickly according to circumstances and situations.					
5	If I read an incomplete story, I can imagine more than one conclusion for it.					
6	Children are worthy of encouragement when they express their own ideas and inferences.					
7	I like to read poets who use innovative uncommon statements.					
8	It is tactful that one, wherever present, adapts to the society in which they live in terms of customs and traditions no matter what such customs are.					
9	I refuse to imitate others in their behaviours and opinions.					
10	I like to read stories with vague ideas which require deep thinking.					
11	It is my habit to trust in those whom I come to know quickly despite the fact that some of them might be deceivers.					
12	I can evaluate the personalities of colleagues through their behaviours.					
13	I admire a person who has multiple hobbies and interests.					

14	I usually tend to summarize when writing scientific research.					
15	I peruse diverse topics and don't limit myself to a specific topic.					
16	It is my habit to express my opinions in different situations in a frank and clear manner.					
17	I feel bored if I continue reading a long research paper or listen to a long lecture.					
18	I have the ability to change the reading technique depending on the nature of the school subject.					
19	I respond in a single way to all persons with whom I deal.					
20	I often dislike routine work.					
21	When someone criticizes a friend of mine, I oppose him or her even if their criticism is true.					
22	I believe that my opinion is always true when arguing over an issue.					
23	My ideas seem to be new and unique when compared with colleagues' ideas.					
24	I tend to use memorization techniques to learn school subjects more than other techniques.					
25	I prefer to always work within a team and do not tend to work alone.					
26	I have high potential to invent new techniques to solve problems that arise.					
27	I tend to solve puzzles and crosswords rather than ordinary issues.					
28	I find it difficult to predict the time within which I can complete all my work.					
29	When a problem happens between two colleagues in my presence, I tend to put more than one interpretation on tothe problem.					
30	I usually do not like to express my feelings about all my affairs.					
31	I usually organize my leisure time according to a fixed scheme.					

32	I cannot adapt to people indifferent age categories whoare not my own age.					
33	My ideas are normal in nature and do not attract others' attention.					
34	It would be better that young people do not discuss issues discussed by adults.					
35	It is desirable that a student adheres to their parents' opinion with respect to the major which the student studies at university.					
36	I cannot disagree with others' opinions without provoking their anger or irritation.					
37	I admire the person who deals with state-of-the-art devices (PC and the internet) with skill and proficiency and designs their programs of their own innovation.					
38	I feel that I do not tend to read vague detective stories.					

Second Scale: Critical Thinking

Please tick one answer only which you select from the two alternative options to each of the following paragraphs (the response time is ten minutes).

S	Items	Yes	No
1	If capital punishment deterred murders, it would be justified. But since it does not deter such crimes, does it follow that it is not justified?		
2	Suppose it is true that if Clyde studies philosophy tonight, he will flunk his math test tomorrow, and if he studies math instead, he will flunk his philosophy exam. Suppose it is also true that he cannot study for both exams (not enough time). Does it follow that Clyde is going to flunk at least one of his exams tomorrow?		
3	My spoon is dry, and my spoon would be wet if I had stirred my coffee, and I would not have stirred my coffee unless I had put sugar in it. So, I must not have sugared my coffee, right.		
4	In order for an argument to be cogent, its premises must be true.		
5	Police: Sorry, but only people with a special ZZ permit can park here. Driver: Well, since I have a ZZ permit, that means I can park here. Is the driver in the right?		
6	If someone's argument begs the question, it still remains a valid argument.		
7	Lincoln's famous quotation, 'You can fool some of the people all of the time and all of the people some of the time, but you can't fool all of the people all of the time' is a cogent argument.		
8	As we all know, spheres cast curved shadows, and the Earth casts a curved shadow on the moon during lunar eclipses. Does this prove that the Earth is spherical?		
9	The president of IBM certainly has influence. Yet, he was unable to enrol his daughter at Washington University. Therefore, it is false, as some people have suggested, that only persons with influence can get their children enrolled at Washington University.		
10	If the truth of statement A implies the falsity of statement B, then the falsity of A implies the truth of B.		
11	Life is meaningless if there are friendships. But life is not meaningless. This entails that there must be a friendships.		
12	If it is true that on a clear day you can see across the Mississippi River (to the other side), does it follow that if one can see across the Mississippi River it is a clear day?		

13	Suppose George knows that Susan stole the money but he wants to protect her. And so, when the police come to question him, the conversation goes as follows: Police: Do you know who stole the money? George: Well, I'm not absolutely sure it was Blackie, but I know it was either he or Susan. Did George lie to the police?		
14	The difference between deductive arguments and inductive arguments is that deductive arguments go from general premises to specific conclusions, whereas inductive arguments go from specific premises to general conclusions.		
15	The famous argument 'All men are mortal, and Socrates is a man; therefore, Socrates is mortal' is a syllogism.		
16	Slippery Slope arguments are fallacious.		
17	Using vague terms in one's premises to aid in the inference to one's conclusion is equivocation.		
18	Vagueness is not the same as ambiguity.		

Third Scale: Emotional Intelligence

Dear Student, this is the third test of measurements, please answer them within twenty minutes by selecting only one answer from the five choices made available to you in the table below. Please tick the choice which best applies to you. Please note that there is no correct or false answer (the response time is fifteen minutes)

S	Items	Strongly Agree	Normally Agree	Fairly Agree	Disagree	Strongly disagree
1	When I am happy, I behave without caution or thinking.					
2	I talk to others without considering their mood.					
3	My sadness when I commit a mistake makes me rethink over my mistake and become more cautious in order not to repeat it again.					
4	I postpone planning for issues requiring concentration to the times in which I am in a good temper.					
5	I can maintain my calmness even if when I am upset.					
6	I spoil happy moments when a simple situation occurs annoying me during such moments.					
7	I suffer fear attacks which I don't know the source of.					
8	I might shift from simple annoyance to deep sadness.					
9	I proactively realize the situations which provoke my anger.					
10	I refrain from engaging in discussions when I am in a bad temper.					
11	I show my pleasure when I receive a gift even if I don't like it.					
12	I express my feelings without consideration for others.					
13	I can shift from bad feelings to positive ones according to the situation.					

14	My fear of some issues confuses me when dealing with them.					
15	I commit a mistake, I feel upset, driving me to failure in thinking in a sound manner.					
16	I can distinguish others' various emotions.					
17	I find difficulty in understanding others' feelings.					
18	I have high potential to describe what I feel.					
19	I can distinguish real and artificial sadness.					
20	I proactively realize which situations would please or annoy me.					
21	I control my emotions in different situations.					
22	If I face a problem and become stressed, I defer resolution of it until my mood has improved.					
23	My anxiety hinders me when implementing certain tasks in a good manner.					
24	I understand others' emotions and deal with them in an appropriate manner.					
25	My mood affects my performance level.					
26	I lose ability to deal with my feelings in a manner suitable for situations.					
27	I feel afraid of certain matters in an exaggerated manner.					
28	I am prone to laughter fits for which I do not know reason.					
29	I interact with others when they express their feelings.					
30	I become annoyed because of my inability to clearly express what I feel.					
31	When someone disagrees with my opinion, I feel upset and dislike that person.					

32	I can change my emotions depending on the situation.					
33	When the person in front of me becomes angry, I realize that they are angry.					
34	My emotion makes me commit mistakes.					
35	I become angry without reason.					
36	I suddenly feel annoyed and sad.					
37	I can control my anger.					
38	My feelings appear in the proper time and place.					
39	My spirit of adventure and not thinking about the consequences are high when I am happy.					
40	I can guess the situations which cause my colleagues sadness.					
41	When I tell my friend good news, I know in advance that they will be happy.					
42	I can distinguish my feeling of annoyance and feeling of delight.					
43	Those around me can easily provoke me.					
44	I lose control of my nerves when I become annoyed.					

Appendix 2: Scholastic Agricultural Project Textbook

State of Kuwait
Ministry of Education

Scholastic Agricultural Project Textbook

Prepared by:

T. A. Rashed, M. A. Abdul-Hadi &F. M. Foad

Ministry of Education

2009

Introduction

We witness an era in which nations accelerate the exploitation of their fortunes for the advancement of their peoples. No matter what these fortunes are, they will run out unless there are dedicated people who maintain well, develop and exploit and invest in the country. You, as a student, are the real wealth that the state is keen on developing and enhancing in order to secure its position in civilization procession.

Therefore, in developing this agricultural project textbook, we intend to make the fundamentals of this activity available for you in order to improve the environment in which you live including the state, the district or your home.

Dear learner,

This agriculture project will guide you to correct information and ways to deal with the environment in which you live regardless of the small size of any such environment; work on forestation and beautifying thereof, employing your mind in preparing a suitable place for planting and utilizing these plants in a systematic and preplanned process.

This agriculture project provides you with topics preparing you for the fundamentals of practical agriculture; first at your home level and then moving to further levels.

The textbook topics are divided into several units supplementary to each other, namely:

Unit One: Fundamental Elements of Agriculture

The soil and significant basic elements of soil. Additionally, the nature of soil and soil groups in Kuwait, and the major problems of agricultural soil in Kuwait.

Unit Two: Processes Associated with Agriculture

Soil preparation and fertilization processes using elements essential for plant life and continuity of growth.

Unit Three: Types of Agriculture

This unit presents types of agriculture such as productive agriculture and beautifying agriculture as well as care for indoor plants (in houses and offices… etc).

Unit Four: Agriculture and Forestation in the State of Kuwait:

This unit starts with agriculture journey in State of Kuwait, the projects established throughout this journey and the objective thereof. This unit also addresses the agricultural areas of Kuwait, growing fruitful palm trees and the objectives of planting palm trees.

Unit Five: General practical and applied lessons in the school agricultural fields.

Unit One

Fundamental Elements of Agriculture

The Soil

Soil is the medium in which plants fix their roots and from which they obtain their needs for water and essential nutrients.

a) Significant Basic Elements of Soil:

1. **Sand:** Silica is the most important ingredient of sand. Sand granule diameter ranges from 50 to 200 microns, which is relatively big, making water penetration high and the aeration of plant roots with oxygen high as well.

2. **Mud:** Contains aluminum compounds and their associated minerals. Mud granules are fine, their diameter is less than 2 microns and hence their coherence together increases, making water holding capacity high.

3. **Alluvium:** Consists of different types of underlying rocks that have been deposited by wind and water. Alluvium granules are a medium size between sand and mud as their diameter ranges between 2 and 50 microns and has similar characteristics to mud but it has lower consistency and hardness.

4. **Humus:** The organic substance in soil consisting of partially decomposed residues of plants and animal refuse. Humus is essential for soil as it maintains air gaps in muddy soil reducing its hardness. It also makes sand soil hold a larger quantity of water. Humus provides soil with essential minerals.

Soil is categorized according to the percentages of its components of sand, alluvium and mud into three types (as illustrated above).

b) Nature of the Soil in Kuwait:

The soil in Kuwait has a sandy consistency. It is loose and has good draining and aeration properties as the sand percentage ranges between 80 and 90% of its total components while alluvium and mud do not exceed 7%. Mr. Kernick, an expert from the Food and Agricultural Organization (FOA), published the report of his study of Kuwait's soil in 1966, which identified the soil groups as follows:

1. Desert soil: includes coherent sand soil, gypsum sand soil, gravelly soil and gypsum salty soil.
2. Sand soil: dry and includes loose sand types and sands forming sand dunes.
3. Rocky soil: is found prior to the edge of the Jal Al-Zoor area.
4. Alluvium soil: includes alluvium and sand deposits carried by rain water and deposited in valleys and depressions.

c) Major Problems of Agricultural Soil in Kuwait:

1. Deficiency of nutrients in soil: The soil lacks organic, alluvium substances and basic nutrients. This problem can be addressed by using good organic and chemical fertilizers in a systematic manner and at rates suitable for agriculture crops.
2. Gutch layer: This is a solid layer found in certain areas and its dimension has different depths. It is non-water-penetrating layer that prevents water penetration downwards assisting with salting process if irrigation is made using salty or highly salty water. This layer hinders the extension and spread of roots affecting the green growth.

3. Low water holding capacity of soil: Since the soil is sandy and lacks organic and alluvium substances, its water holding capacity is weak. Therefore, attention should be paid to the use of natural organic fertilizers.

School Activities

Activity that can be undertaken to achieve the objectives of this unit:

Collecting soil samples:

1. Collect samples of three different types of soil from the State of Kuwait and write a report on each sample. Compare them in terms of location, salinity percentage and suitability for agriculture.

Unit Two

Processes Associated with Agriculture

Soil Preparation

Soil is the essential and vital factor for the successful growth of plants due to its direct effect on plant growth. It is essential to provide good agricultural soil that is rich in nutrients in order to ensure the vigorous growth of plants. Planting requires good soil in terms of physical and chemical properties. Therefore, the properties of the soil and level of surface water in land intended to be planted should be studied. The following sections illustrate the significant physical and chemical specifications of soil suitable for planting.

First: Initial Processes:

Soil specification should be verified:

a) Physical Properties of Soil Suitable for Planting:

1. Soil should be clean and free from residues of plants, seeds of harmful weeds, gravel and wastes;
2. Soil should be free from gutch layer (non-penetrating layer); and
3. Size of soil granules should be suitable to allow for passing through the appropriate sieves in the percentage set for passing.

b) Chemical Specification of Soil Suitable for Planting:

1. Soil suitable for agricultural uses should have pH 6.5–8.5.
2. Electrical conductivity of soluble salts in soil solution (at 25^{o} Celsius) shall be approximately four millimhos/cm∗.
3. Sodium adsorption rate (SAR)∗∗ should not exceed 8.

Second: Preparation of Soil for Planting:

Plants in general require soil fit for planting in order to grow well, which soil should have chemical and physical specifications that help plants grow. Furthermore, soil should be prepared for planting through several essential processes as follows:

1. Removal of Waste and Plant Residues:

This process is vital and essential because to be fit for agriculture soil shall be clean and free from the residues of previous plants in order not to affect growth of new plants. In addition, soil should be free from gravels that hinder growth of plants and block good development of their roots. Furthermore, soil should be free from seeds of weeds in order not to grow with new plants and hence share their nutrition and hinder their growth.

∗ Millimhos is the maximum permitted limit of salinity in irrigation water according to soil consistency and extent of plants capacity to endure salinity.

∗∗ Adsorption: is the pending of chemical molecule with specific electrical charge to the surface of a material or metal with different electrical charge without occurrence of interaction between both of them.

2. Cultivation of Soil Prior to Planting:

Turning the soil prior to planting, such as by ploughing, is vitally essential for growth of plants as this process assists with loosening soil granules and creating thorough gaps among its granules. This helps roots penetrate into soil granules in order to obtain the water and nutrition necessary for growth. Further, soil that is not cultivated gradually transforms into hard soil, which results in the demise of plants as they cannot obtain water and nutrition. In addition, turning the soil results in its aeration and allows for provision of air among its granules as plants require gases in air as much as they require water and nutrition. Lack of air among the soil granules also results in the demise of plants.

3. Adding Boosters and Fertilizers to Soil in Preparation for Planting:

Soil boosters improve soil properties in terms of its water holding capacity and providing suitable media for growth of useful bacteria. Boosters also help keep the soil pH at a suitable limit. Certain soil boosters contain a good percentage of azote and necessary major nutrients for growth of plants.

Soil boosters are classified according to their source, into two types:

a) Plant Based Soil Boosters:

These are the residues of plants after fermentation, decomposition and sterilization thereof. This type of booster is characterized by low pH, ranging between 4 and 4.5, and is free from disease and seeds of harmful weeds. However, these boosters have low key nutrients; therefore, when using them in soil mix, slow soluble compounded chemical fertilizers should be added, observing that the blend ratio of plant-based soil boosters should be 1:2 (planting soil) + 2 kg of slow decomposing compounded chemical fertilizer per m^3 of the blend.

b) Plant and Animal from Original Soil Boosters:

These boosters are the product of processing the residues of plant and animal waste (garbage waste) after sterilization. This product is called compost. Compost is characterized by its low price in addition to containing a high ratio of nutrients necessary for the growth of plants. Defects include the instability of its elements ratio which differs according to the different components, as well as higher pH than plant-based boosters. Its defects also include contents that are not important for plants (plastic, glass). This type does not require the addition of chemical fertilizers upon use in the soil blend process due to difference in the content of key nutrients according to different components thereof (the blend ratio is 1:3 planting soil).

Fertilizers added to soil to prepare it for planting are organic or chemical compounds used in nurturing plants during their development period and should be added to plants in large quantities'. They may be used in soil before the planting process. Fertilizers in general contain the nutrients required for the growth of plants. Fertilizers are generally categorized, according to their components, into two types:

1. Organic fertilizers.
2. Chemical fertilizers.

Soil levelling is another essential process in preparing soil for planting through removal of elevated areas in the farm and making it level. This process is important to facilitate access of irrigation water to all areas of the farm as well as facilitating completion of other agricultural operations.

Third: Depth of Planting:

When preparing soil for planting, the necessary depth of planting for each species of plants should observed as this affects their growth. Plants require different dimensions of beds allocated for planting.

Basic Elements for Plant Nutrition

Not all of the elements absorbed by plants are necessary for their life except for carbon, hydrogen and oxygen, which are present in almost all organic compounds in plants as a high percentage of the plant's dry weight, and these form as much as or greater than 90%. The basic elements in plant nutrition are divided into two groups: major nutrients and minor nutrients. We will examine the role of each of the basic elements for plants including the importance of these elements and symptoms occurring in plants due to shortage thereof.

a) Major Nutrients:

These nutrients are the elements that a plant requires in large amounts and cannot dispense with. Further, deficiency in any of these elements in plant nutrition would result in disease symptoms that are treated through fertilizing with such elements, observing the nutrition balance with other elements. These nutrients are:

Nitrogen: This element is involved in the composition of amino acids and proteins, which are the most important components of protoplasmic substance.

Phosphorus: This element is contained in the composition of phosphorated carbohydrates and hence is contained in the composition of protoplasm. It is also contained in the composition of nucleus proteins and plays a vital role in the conversion of carbohydrates, respiration and energy transport.

Potassium: Exists in large amounts in growth areas in the plant, particularly buds, new leaves and root tips.

Calcium: One of the basic elements contained in the building of plant structure. The largest portion of this element in most plants exists in the leaves. Ions of this element play an important role in neutralizing the poisonous effect of the ions of other elements through antibiosis. Furthermore, ions of this element have a clear impact on penetration of plasma membranes.

Magnesium: Involved in the composition of the chlorophyll molecule and has a bearing with phosphorus usage in plants. Tissues of plants containing large amount of magnesium concurrently contain large amounts of phosphorus.

Sulphur: Found in many compounds in plants such as proteins, vitamins and chlorophyll. It also exists in the composition of mustard oil that creates the distinct smell of certain plants such as mustard, onion and garlic.

b) Minor Nutrients:

Iron: Essential in the formation of chlorophyll despite the fact that it is not contained in the composition of chlorophyll. Also, iron acts as a catalyst in many interactions in plants. It also has an important role in the respiration process as it is contained in the composition of certain enzymes and respiration factors.

Manganese: Exists in large amounts in parts of plants with physiological activity, particularly leaves. Manganese acts as catalyst in oxidization and reduction processes.

Zinc: Plants require zinc in small amounts to grow well. It acts as a catalyst in oxidization and reduction processes, formation of chlorophyll and photosynthesis. It is important in the formation of enzymes that are critical to anaerobic respiration.

Amounts to be Added during Growth of Plants:

It is preferable to add chemicals during plant growth seasons (autumn, winter outset and spring) and they should be added in lots (twice or three times) for each planting season. The quantity of fertilizer depends on the type, size and age of the plant.

Unit Three

Types of Agriculture

First: Productive Agriculture

The growing of plants for the purpose of food, clothing or industry, whether for humanor animal use. Production agriculture is divided into:

a) Field Agriculture:

The farming of plants in open land fit for agriculture and exposed to prevailing environmental conditions. Significant field based plantings in Kuwait are:

1. Leaf vegetables: These are annual plants, of which leaves and fresh stems are eaten. The majority of these vegetables are planted at the end of autumn and start of winter (parsley, dill, coriander, celery, watercress, and lettuce) ;
2. Fruit and root vegetables: These are annual plants, of which the fruit or root is eaten. The majority of these vegetables are planted during autumn and winter (eggplant/aubergine, pumpkin, watermelon, certain species of tomato, and potato) ;
3. Crops: These are product plants for obtaining fruits, seeds or the entire plant (clover, barley, and beans) ; and.
4. Fruits: The purpose of planting these is to obtain and consume fruit (grapes, dates, oranges, and guava).

b) Modern Agriculture:

1. Greenhouses:

These are houses or tunnels made of glass, fibreglass or plastic in which appropriate conditions for plant growth can be controlled including temperature and moisture and they can be used for overcoming soil defects and problems. This method is characterized by high production and control of ripeness timings.

2. Soilless Agriculture:

The farming of plants in containers containing granules and sand to fix the plant, and insulantmarerial providing a humid environment for the plants. Nutrient solutions that the plants require are used to irrigate the plants and provide of necessary nutrients for growth. Major species planted in this way are lettuce, cabbage and strawberry. This method is characterized by high production and quality.

Second: Beautifying Agriculture

a) Definition of Beautifying Agriculture:

The cultivation of plants for beautifying purposes, improving environmental conditions and providing recreation and amusement for people**.**

b) Importance of Beautifying Agriculture:

Public gardens and parks are essential in the planning of modern cities, being created to serve as public utilities for cities and districts for pleasure trips, spending weekends and vacations and providing entertainment for the population. In these gardens and parks, areas are allocated for practising certain spots such as jogging and running, for children's playgrounds, for seating and other recreational facilities.

Furthermore, beautifying agriculture has an important role in maintaining the environmental balance and a soothing atmosphere.

c) Fundamentals of Beautifying Agriculture:

1. Soil.
2. Water.
3. Suitable types of plants for Kuwait environment.
4. Trained human capital with experience in the field of beautifying agriculture.

d) Major Types of Beautifying Agriculture:

1. Green Surfaces:

These are created by a lawn of perennial or annual green couch grass covering wide areas of gardens and parks. In addition to the role of green surfaces in climate treatment, they serve planning and functional purposes in the park. Green couch grass surfaces (lawns)are areas of land whose surface is covered with green leaves and stems of plants are spread at few centimetres above ground level.

2. Trees:

These are woody plants with a straight trunk, with height of up to 60 metres and trunk diameter of up to several metres. Trees are among most important plants used for beautifying of parks and roads. They also provide shade in the garden, soothing the atmosphere, giving a background scene and identifying wide areas. Major species suited to Kuwait are conocarpus, rubber, lotus jujube.

3. Shrubs:

These are woody plants with branched trunks with height not exceeding 4 metres and diameter of several centimetres. Shrubs may be upright or horizontally spread, and have a primary and important role in the beautifying of parks and external areas. Furthermore, certain shrubs are used to creating external or internal plant fences in parks, road sides and entrances. Shrubs have green leaves or flowers. Major shrubs suitable for the Kuwaiti environment are: bougainvillea, hibiscus, *Tecoma stans* and damask rose.

4. Ground Covers:

These might be shrubs, or grassy plants, which are spreading or creeping in habit, with a maximum height of 0.5 metre and which cover theground completely. Major types are ipomoea, wedelia, gazania, and fenkroza

5. Palms:

Palm tree cultivation is a major field of agriculture due to the historical importance of the palm tree, which is one of oldest trees cultivated by humans, used for food and treatment of many diseases. It is an evergreen tree that continues growth even when temperatures decline in the winter nights. Palm trees are divided into:

1. Ornamental palm trees (Washingtonia, Canary)
2. Fruitful palm trees (palm dates, butternut)

e) Care for Beautifying Plants:

1. Fertilizer:

This is a critical nutrition factor for growth of plants. Beautifying agriculture requires chemical and natural fertilizers.

2. Irrigation:

Irrigation is undertaken on regular basis depending on the needs of individual plants provided that irrigation should be done on daily basis during summer time and at longer intervals during winter. It is preferable that irrigation takes place in the early morning or evening time after sunset.

3. Trimming, Clipping and Shaping:

Clipping process is a series of trimming and pruning of branches in order to direct growth, get rid of undesirable parts or obtain a specific shape and height. It is a process that helps plant keep strong and productive.

There are basic rules that should be taken into consideration when starting the design of gardens and working on coordination thereof, namely:

1. The land area should be a green surface, out of which small walk ways or passages inside the garden and planting pots should lead.
2. The building or house itself should be coordinated and landscaped to supplement the scene with the garden.
3. Walkways and passageways should be planned.
4. Introduce and highlight scenery adjacent to the garden into the design.
5. Adopt simplicity in design and avoid mixing plant species.
6. Do not leave the corners empty; rather they should be coordinated and ornamented with plant and tree groups as well as introducing certain finishing touches.
7. Select shrubs of a suitable height.
8. Do not plant trees and shrubs in front of doors and windows in order not to block sunlight and ventilation.

Indoor Plants

Indoor plants play an important role in interior decoration and beautifying houses, offices, hotels and other enclosed places. They give a touch of pleasure and high standard of taste. Since growing such plants requires special needs that should be properly available, therefore, we have to give an overview of them

Major Indoor Plants:

First: Leafy plants: These are most beautiful ornamental plants due to the different colours and shapes of their leaves. They include dracaena, ficus, and ornamental palm trees.

Second: Flowering plants: This group provides a wide diversity in terms of shapes and colours. Further, some plants of this group (e.g. hyacinth and gardenia) have a strong and pleasant fragrance.

How to Select Indoor Plants:

There are many species of indoor plants to choose from. However, when you buy an indoor plant, it should have good growth, be free from any disease or insects and not stored for too long in the shop. This can be noticed in its liveliness and vivid color.

Third: Fundamentals of Distribution of Plants in the House:

1. Plants which are fit for reception hall, corridors and saloon rooms; ficus, dracaena, and yucca.
2. Plants which can be placed on tables or areas above ground level are; gardenia, Tradescantia, *Tradescantia albiflora*, and *Sansevierias*.
3. Internal climbing plants that can be hungon interiorwalls; hedera, nephrolepis, and exaltata.

Fourth: Care for Indoor Plants:

To maintain good growth of indoor plants, the following points should be taken into account:

1) Light

Plants vary in their needs for light depending on their species. Light here means sunlight or artificial light as plants can perform photosynthesis with both.

2) Water

Indoor plants' need for water depends on several factors (plant species, size, position temperature, place humidity, flowerpot size). In general, internal plants need water on a regular basis in summer and at longer intervals in winter.

3) Nutrients:

Indoor plants need nutrients, first after approximately two hours from planting in good agricultural soil. There are many nutrients for indoor plants in different forms (powder, sticks, liquid).

4) Humidity

The plant can be sprinkled with water from time to time in early morning.

5) Air

The plant requires ventilation, from time to time, of the place in which it is located.

6) Temperature

The optimum temperature for internal plant growth ranges between 55 and 75^{o}f (12.8 –23.9^{o}C).

Fifth: Some Problems of Indoor Plants:

1. Yellowness of some leaves that easily drop when touched it; this results from excess irrigation water.
2. The plant is weak and does not grow well, with pale leaves. This is due to deficiency in light and certain nutrients.
3. Withering leaves due to insufficient irrigation water and dry air.
4. Flowers and buds fall down; this is due to excess irrigation water and dry air and insufficient light.
5. Leaf edges are brown due to direct sunlight or excess nutrients.

These problems can be remedied by avoiding the causes for their occurrence, along with changing the soil in the plant's container once every year and the container itself once every three years.

Sixth: Guidelines:

1. It is advisable to put plants in places away from seating and passing locations in order to avoid wounds and damage to leaves.
2. Plant blights and diseases should be eliminated when they occur in order not to have a detrimental effect on plants.
3. The plant roots should not be cut when moving it from a smaller container to a larger one. Large planting beds should be provided with indoor plant soil.
4. Indoor plants should be irrigated according to their needs, observing that irrigation water should not be in excess amounts as this causes root rot and accordingly death of the plant.

5. Plants should be continuously fertilized with their respective fertilizers whether in liquid or pill form. (Avoid increased fertilizer quantities as excess nutrition is more damaging than insufficiency thereof.)
6. Do not overuse sprays for leaf polishing as it has adverse effect on the plant.

Seventh: Activities to Achieve the Unit Objectives:

1. Grow plants using the soilless agriculture method in special basins.
2. Grow some indoor plants in labs or school premises and focus on the fundamentals of plants distribution.
3. Students can care for a garden at home, improve its productivity and present this activity to classmates, highlighting competition for the best and introducing citizens' efforts in this aspect.

Unit Four

Agriculture in the State of Kuwait

Agricultural Journey of the State of Kuwait:

When talking about the environment, we cannot overlook forestation as these are deeply correlated. The path to a clean and beautiful environment passes through forestation. The State of Kuwait, like other nations, adopts the same approach to serve the homeland and its citizens.

Forestation has not received attention parallel to the level of development and urban expansion that Kuwait has witnessed since the 1950s when forestation was limited to the setting up of traditional public parks, planting a few squares and the central reservation lanes in important streets, relying on a few palm trees and certain decorative plants in addition to some forestation and grazing projects.

The national plan for the country's forestation and beautifying up to 2015 concluded the following objectives to be achieved:

1. Improve the environment, develop the forestation process and beautify the country for present and future generations.
2. Impart to Kuwait a distinguished aesthetic identity reflecting the originality of the national civilization and heritage.
3. Reduce energy consumption based on mitigating summer high temperatures and moderating the climate.
4. Promote local agricultural activity and agri-processing, and create new renewable jobs and a dynamic economic sector.

5. Prepare the environmental situation to attract investment, tourism and business projects which will have a positive impact on national economic progress.
6. Enhance social behaviour and aesthetic sense, and boost society and individuals' living standard.

The plan concluded five key themes or elements that should be implemented in successive phases:

1. Green belts and main entrances to the country.
2. Highways, carriageways and main streets.
3. Public parks and gardens, squares.
4. Urban development areas (houses, private, commercial and industrial buildings).
5. Special projects areas (schools, hospitals, car parking areas, government buildings).

In light of the current status, challenges, ambition and goals, there is a need for support to enhance these efforts and deepen awareness of forestation value through participation at all levels so that we can overcome obstacles and eliminate obstructions, importantly:

1. Limited financial provisions and budgets allocated for beautifying and forestation projects.
2. Lack of qualified Kuwaiti manpower specialized in beautifying agriculture
3. Infringements against beautifying sites.

4. Neglect bythe media and lack of guidance in connection with forestation importance and environment preservation.

Important Activities and Achievements:

1. Care for and development of soft beautifying in roads and streets:
2. Care for and development of existing public and model parks.
3. Project for construction of specialized (model) parks.
4. Project for utilization of treated sewerage water in irrigating plantings:

It is worthy of note here that this project is highly important and consistent with Kuwait's development efforts. It represents a generic distinct step with great impact on activities involved in the expansion and development of forestation and environmental improvement for the following reasons:

I. Maintain strategic well reserves of brackish water
II. Not discharging sewerage water into the waters of the Gulf
III. Restrict environment pollution, in particular of the marine environment.
IV. Utilize treated sewerage water as a good source for improving soil properties and fertility, improving agriculture, particularly of ornamental plants because brackish water is not suitable for these plants.
V. Gradual disappearance of tanker irrigation phenomena.

5. Project for planting Kuwait International Airport

Agricultural progress in the State of Kuwait has not ceased as there are ongoing persistent efforts to keep pace with advancements due to the nationals' efforts,

whereas agricultural processes play a critical role in solving many environmental problems.

Role of Agriculture in Maintaining Livestock Wealth in Kuwait

Forestation has a vital role in maintaining and developing livestock wealth in Kuwait due to the importance of plant cover as significant source of feeding for camels, sheep and goats. Forestation also provides a suitable environment for wildlife as it provides protection, shade and reasonable temperature for wild animals. Since 75% of Kuwait's land area is classified as natural grazing land, the State, therefore, takes care of grazing areas and rehabilitation thereof by planting grazing and native plants, and enacting legislation that protects such areas from destruction and damage.

Agricultural Areas in the State of Kuwait

Agricultural areas in the State of Kuwait are distributed as follows:

1. Al- Wafra Area.
2. Al-Abdali Area.
3. Al-Sulibiya Area.
4. Other areas (Jahra, Fintas, Abu-Halifa etc.).

Associated Activities

Dear Students, we present some associated activities for agriculture and forestation in the State of Kuwait, from which we hope you will gain benefit and value:

1. Visit an institution that contributes to developing agricultural wealth in the State of Kuwait and write a report on the same with relevant documents enclosed.

2. Visit agricultural areas in Kuwait and highlight their important products and their impact on social life.

* You are free to select an option from the above.

* Note: Implementation of any of the above activities will take place under supervision of the current project supervisor.

Cultivation of Fruitful Palms in the State of Kuwait

The fruitful palm tree is evergreen tree that continues growing upon the decline in temperature in winter, provided that the temperature is not less than 9^{o}C. It is also characterized by enduring high maximum temperatures as well as capability of growing in areas with high salt concentrations unsuitable for many other plants.

First: Species of Palms:

The State of Kuwait is known for its diversity of palm trees and their fruits. The varieties growninclude: Jouzy, Berhi, Breem, Houiz, Umaldehn, Majdol, Khalas, Helali, Sweet, Nabut and Halawi.

Second: Palm Cultivation Methods:

The areas of highest productivity for palm tree growing are those that have hot climate from pollination up to maturity of fruits, provided that such period is free from rains and has low humidity.

Palm trees can be reproduced through one of the following methods:

1. Seed.
2. Shoot.
3. Propagation.

1. Seed Reproduction:

This method is the primary way in spreading palm trees in the majority of areas in which they are planted. However, some species with good advantages cannot be reproduced by seed for the following reasons:

1. Almost one half of palm trees reproduced from kernels (seeds) are male plants.
2. Male and female palm trees cannot be differentiated up to blooming time.
3. Seed-grown palm trees produce different fruits with poor quality in most cases.

Some fields require usage of seed reproduction, such as:

1. Palm tree reproduction for decoration purposes
2. Obtaining male trees.
3. Obtaining trees resistant to certain diseases.
4. Special purposes such as hybridization.

2. Palm Shoot Planting:

There are two methods for planting palm shoots

1. Planting in permanent locations:

In this case, it should be ensured that projected percentage of success in palm shoots is high so that no empty spaces among trees occur and there will be no much difference in lengths of trees affecting each other.

2. Planting in nursery:

Good palm shoots should be planted in holes 50 cm deep and 50 cm in diameter in 1x2m dimensions. It is advisable to sterilize the nursery land either through exposure to sun and air or by using certain gases that eliminate weed seeds and other creatures.

The depth at which the palm shoot is planted is of critical importance in its success, if a palm shoot is planted at surface level, this will result in it being damaged by wind action. Also, if a palm shoot is planted at deep level, this might expose the base to humidity, fungi contamination and rot.

It is preferable to use a drip irrigation technique. Further, due attention should be given to soil ploughing and weed control. During the first three months, palm shoots do not require chemical fertilizers. After this period, specific quantity of a zote fertilizer can be added – about 5gm of urea per palm shoot. The palm shoot should be kept in the nursery for minimum of one year before being moved and planted in its permanent location.

3. Propagation Reproduction:

Propagation is the process in which a part of a live cutting of a plant is taken out and planted in an artificial environment containing a set of chemicals assisting its growth through increasing the number of cells until different parts of the plants are formed. This takes place through carrying out this process under fully sterile conditions within labs equipped with special serialization equipment.

Despite the importance of propagation reproduction, reproduction using the traditional method (palm shoots) will maintain its importance due to the likelihood that mutations would occur in the palm shoots generated from propagation reproduction, which makes them different from the properties of the mother tree.

In propagation of palm trees, the following steps shall be followed:

1. A palm shoot is separated from the mother (female) palm tree. Usually an appropriate palm shoot with active growth shall be selected.
2. Under sterile conditions, the growing top of the palm shoot is extracted.
3. The growing top is cut into small pieces provided that they contain active live cells.
4. Live tissue cuttings are planted in the lab in special environment characterized by the following:

i. Appropriate nutrient medium

ii. Suitable temperature and humidity

iii. Sterile conditions around and inside propagation cultures.

iv. Thorough monitoring process shall be applied to live tissue cuttings growths. Also, nutrient solution shall be replaced at specific times.

v. New plants begin to grow where the green part of the plant occurs first followed by root group.

vi. Plants are transferred to a separate nutrition environment where monitoring process and solution replacement will continue.

vii. Plants are transferred to a greenhouse. This is the first step towards transferring the plants to the natural environment.

Third: Care for Palm Trees:

To obtain good produce of dates and maintain the tree's integrity, ongoing care should be provided through following the guidelines below:

1. Fruit Trimming Process: the removal of some of the young fruits in order to improve the quality of fruits remaining on the tree and organize its yield in next seasons. This process can be performed within five weeks from pollination depending on climatic conditions.

Palm tree fruits shall be trimmed in three methods depending on the nature of fruitage, namely:

i. Removal of bunches of dates: Cutting a number of bunches of dates, particularly weak ones or those infected with disease or insects.

ii. Trimming bunches of dates: Removing a number of stalks or cutting long ends of stalks.

iii. Fruit trimming: This method is not important in terms of application.

2. Clipping and pruning: Palm tree clipping takes place by cutting undesirable leaves, removing thorns from new leaves and cutting fibres and branches that are adjacent to the palm tree trunk in certain species.

3. Dangling and bagging: Dangling is applied to species with long bunches. Bagging process is also performed by covering fruits with perforated plastic bags.

Fourth: Irrigation:

Each palm tree will be given 120–150 gallons in every irrigation process. In the event that the basin in which the palm tree is planted does not accommodate this amount, the frequency of irrigations can be increased to cover the required quantity of water. The palm tree shall be irrigated twice during November, December, January and February; four times during March, April, September and October; and six times during May, June, July and August.

Fifth: Fertilizers:

Types of fertilizers include:

1. Organic fertilizer: It consists of a blend of animal wastes and remaining parts of plants and animals. A palm tree needs 50–75kg per year.

2. Chemical fertilizer: There are many types of fertilizers. However, all chemical fertilizers contain one to three key elements that the plant requires throughout different growth stages, i.e. azote (nitrogen), potassium and phosphorus such as Nitrophoska compound. Fertilizingtakes place in lots during autumn, winter and spring.

Palm Tree Blights

Palm blights are divided into three types:

First: Palm Tree Diseases:

All diseases attacking palm trees are caused by fungi and can be identified by description of symptoms appearing on the affected parts. Two types of diseases are known in the State of Kuwait; one of them causes damage to a high portion of newly planted palm shoots and the other damages a number of spadix in certain areas. These diseases as follows:

1. Terminal Bud Rot Disease:

It is also known as black blight or palm trunk rot. This disease attacks all parts of date palm except the roots.

Infection symptoms vary according to the affected part as it appears on the fronds in the form of spots and burnings ranging between brown and black in colour. The affected spadix becomes rotten.

Control:

To avoid infection and control the disease if it occurs, the following actions are recommended:

1. Sprinkle the palm shoots upon planting with suitable bactericide more than once;

2. Cut the infected parts and burn them away from the date palm;

3. Sterilize the tools used in the cutting process as well as sterilizing cutting spots with appropriate chemical disinfectants; and

4. It is advisable to treatall palm trees around the infected tree to prevent disease transmission to them.

2. **Inflorescence Rot Disease:**

It is also known as blossom or stalk rot. The disease symptoms are often seen in late winter and early spring upon spadix emergence where rust-like stains appear on the external surface of the spadix integument prior to blooming and exist in large amounts at the ends of integument. The brown colour is associated with a rosy like white powder, i.e. the spores of the fungi causing the disease.

Control:

Control methods are summarized below:

1. Ensure that the pollen used for pollination is free from infection;

2. Collect infected spadixes and burn them away from the date palm; Sprinkle the palm trees with suitable fungi disinfectant; and

3. Re-spray the date palms on which the infection has previously occurred at the beginning of spring or upon start of florescence. Also, it is advisable to spray all nearby palm trees in anticipation of airborne fungus spread.

The most important fungicide used for this disease management is *Benlate* where the mix ratio is 5 gm to one gallon of water. One to two gallons of spray solution is sufficient for each palm tree.

Second: Date Palm Insects:

1. Date Palm Scale Insect:

This insect grows intensively in shady areas. Mature insects feed on all green parts including the palm dates causing weakness of the plant, and low quality and inedibility of dates.

Control:

The date palm scale insect is controlled through two techniques:

a) Agricultural Control:

1. Planting the palm trees at suitable distances to avoid insect communication;
2. Cutting and burning infected fronds; and
3. Clearing cultivated land of weeds.

b) Chemical and Biological Control:

1. Use suitable disinfectants and oils such as *Methidathion*40% and mineral oil, e.g. folic; and
2. Use biological natural enemies such as:
   i. Ladybirs that feed on aphids.
   ii. Hormones attracting harmful insects.

2) Borer

It is a species of insects that digs into the date palm parts for nutriment and habitation purposes. This causes damage to infected parts such as the palm trunk. The symptoms include presence of glue secretions at the infected area.

Control:

1. Get rid of remaining infected parts of date palm by burning the same;
2. Ensure that fertilizers are free from the insect stages before usage;
3. Dippalm shoots in disinfectant solution or add the substance around the palm shoot base during planting;
4. If infection occurs on palm trunk or bunch or fronds, spray with water-soluble disinfectant such as *Diazinon*; and

5. In case of severe infection, date palm trunks can be injected with water-soluble disinfectant to move with the extract to different parts of the trunk to eliminate the larvae.

3) Red Palm Weevil:

It is one of most dangerous insect blights attacking date palms because all larvae begin their life inside the palm away from external impacts. Larvae feed avidly on soft tissues and fully mature insects show strength and endurance of environmental conditions and have few natural enemies.

Infection Symptoms:

i. Glue-like bad smelling liquid is oozed out of infected palm;

ii. Rotten sawdust occurs due to larval digging; and

iii. In late stages of infestation, it is noticed that there are holes on the trunk filled with bad-smelling products of digging and feeding.

Control: Red palm weevil is controlled through several methods including:

Chemical control:

Use liquid insecticides or transcendental substances such as *Diazinon* 40%.

Agricultural control:

Balance in irrigation and fertilization.

Mechanical control:

Avoid causing damage during clipping.

Legislative control:

Strict enforcement of external agricultural quarantine laws and application of local agricultural quarantine procedures.

4) Laser Date Moth:

This insect infects the fruits as larvae enter inside the date fruit and feed on theflesh and kernel. After some time, such dates turn red, from which the insect's name is derived in Arabic. Major symptoms are presence of holes in the date fruits filled with larval secretions along with existence of silk fibres.

Control:

1. Get rid of remaining infected date fruits or spray the date palm on blooming area upon emergence of spadix before flowering; and
2. Chemically control through spraying insecticides such as *Malathion* 75% and *Diazinon* 40%.

5) Date Spider Mite

Spider mite larvae, nymphs and mature insects suck plant extract from the fruits causing incomplete growth and delayed maturity, and turning thema reddish brown colour

With increasing infection, the fruits are covered with fibre excreted by the spider mite and dust particles attach to it when wind blows. Therefore, the dates appear dusty and that is why the mite is also called the dust spider mite.

Control:

Date spider mite is controlled through covering with sulphur powder during the period from the beginning of May till mid June.

Associated Activities

Dear learners, we present some associated activities presented for the cultivation of fruitful palm trees in the State of Kuwait, which we hope will benefit you:

1. Collect samples of palm tree species in Kuwait and write a report on each sample including planting method, care and benefits.
2. Plant certain species of date palms using the right method and provide care to them.
3. Bring samples of date palms infected with blight and writea report including cause, symptoms of infection and protection.
4. Care for date palms in your school garden or home garden, if any, document and present the same to your classmates.
5. You are free to select one option from the above.

* Note: Implementation of any of the above activities will take place under supervision of the subject teacher.

Unit Five

This unit consists of general and several practical and applied lessons in the agricultural fields in the school.

REFERENCES

1. Kasem, K. (2002). Agriculture guide. Kuwait: Future World.

2. Several Publications of the Public Authority of Agriculture in Kuwait, for instance; Palms, Soil, The Forestation Plan in Kuwait, Indoor Plants, House gardenetc.)

Appendix 3: Photographs of Scholastic Agricultural Fields

Work in the agricultural fields in the schools in this study for project method administration and practical work by the students in the current study.

Declaration

I declare that I have elaborated this PhD. thesis independently on the basis of consultation with my PhD. thesis supervisor, ***Prof. Dr. Jürgen Oelkers*** and using the quoted literature.

Acknowledgements

I would like to express my deep sense of gratitude and indebtedness to my supervisor ***Prof. Dr Jürgen Oelkers*** for his kindness, academic supervision and guidance throughout the course of this study. In particular, I would like to acknowledge the standards provided by him, and appreciate the scientific and intellectual encouragement and support I received from him. His best guidance and advice on the technical and scientific problems and conceptualization of the ideas have been an immense help to me during the development and finalization of this thesis.

I express heartfelt thanks to my best friend and darling wife ***Fatema Baqer*** and my dear parents ***Mustapha*** and ***Khadija*** for their patience, encouragement, separation pain and suffering while I completed this research.

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Faculty of Philosophy

Pedagogical Institute

CERTIFICATE

This is to certify that in the thesis entitled 'The effect of the project method on the development of creative thinking, critical thinking and emotional intelligence: A case study of secondary school students in the State of Kuwait', submitted for the award of the degree of Doctor of Philosophy, the work was carried out by ***Majed M A R Ali*** at Zurich University under the supervision of ***Prof. Dr Jürgen Oelkers,*** This work has not been submitted in part or full to any other university for the award of any degree or diploma.

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External Participations:

- The international conference of psychology cases from 1st- 8th June 2002. The title of my presented paper was: The social and psychology effects of drug addiction among adolescents. This paper already published at the conference journal.

- Second children world festival in Paris from duration 21st – 30th June 2002, the title of my presented paper was: How can we create peace environment for our children.

- International convention on quality control circles in India, from duration 17th - 20th Dec 2002, the title of my presented paper was: The differences and correlation between creativity with scholastic activities among secondary school students in State of Kuwait.

- Celesta international conference in India, from duration 12th -16th April 2003, the title of my presented paper was: How can we benefit from our culture.

- The second conference of school activities in Dubai from 17th – 25th 2003. The title of my presented paper was: The psychology and sociology effects of practicing school activities among adolescents at State of Kuwait.

- Young general assembly, fourth annual session in R. of Romania, from duration 5th-16th Aug 2003, the title of my presented paper was: Relationship between globalization and development social skills among adolescent

- The international conference of childhood in Morocco from 2nd – 6th March 2004. The title of my presented paper was: The relationship between psychology and social dimensions of scholastic activities with development Arabian childhood.

- Kuwaiti Culture week in Amman University from 5th- 9th April 2002. The title of my presented paper was: The role of schools to face negative phenomenon's in society.

- International cultural meeting in Hungary, from 21st Jul - 1st Aug 2004, the title of my presented paper was: The youth and education, how can we make it together.

- Cooperation and education meeting with culture office in Zohen Shan Univ in Chain at 15th Sep 2005.

- International children's assembly in India from duration 14-20 Nov 2004, the title of my presented paper was: The effect of scholastic activities of aggressive behaviors among adolescents in State of Kuwait.

- Kuwaiti culture week in Amman University from 12th – 20th April 2007. The title of my presented paper was: The philosophy and psychology perspectives of international culture dimensions on our real education.

Internal Participations:

- The twelve conference of Arabian Bureau of Gulf Countries which organized by UNESCO at 15th May 2003. The title of my presented paper was: The role of political system to promote the psychology and social values.

-The first conference of Autism which organized by Kuwait Center of Autism. The title of my presented paper was: Relationship between integration Autism with normal children in the summer clubs in State of Kuwait with development their psychology and social aspects. *This paper already published in the conference journal.*

-The Sixth conference of UNESCO under the title of: Relationship between education and computer among schools from 2nd- 3rd 2000. The title of my presented paper was: The dimensions of computer uses on development students' creative abilities.

-The third international conference of social sciences faculty of Kuwait University from 3rd - 5th Dec 2006. The title of my presented paper was: Relationship between creativity and anxiety among science club members. *This paper already published in the conference journal.*

-The fourth international conference of social sciences faculty of Kuwait University from 29th April -1st May 2008. The title of my presented paper was: The differences of sex in citizenship among secondary schools students in State of Kuwait. *This paper already published in the conference journal.*

-The fifth international conference of social sciences faculty of Kuwait University from 28th -30th April 2009. The title of my presented paper was: The relationship between creativity with functional and anatomy of brain. *This paper already published in the conference journal.*

-The sixth international conference of social sciences faculty of Kuwait University from 23th -25th April 2010. The title of my presented paper was: The relationship between creativity with functional and anatomy of brain. A study of the differences correlational relationship and the effects of some psychological variables on aggression among adolescents. *This paper already published in the conference journal.*

Publications:

First: In the field of researches:

- **Majed, A., Ajai, S. & Fatema, B.** (2010). Social anxiety in relation to social skills, self-esteem and self-confidence among adolescents. *Bulletin of the Faculty of Arts*, Cairo University, 71, 209 - 236.

- **Majed, A.** (2010). Depression in relations to social anxiety, morbid fears and parenting among adolescents. Journal of Stress and Health, 2, 312-338.

- **Majed, A.** (2010). Prejudice in relation to aggression, stress and self confidence among, school adolescents. *Journal of Health and Illness*, 1, 93-101.

Second: In the field of books:

School of future, Psychology of creativity.

Hobbies: Reading, Sport, Travelling.